Local Transit Feasibility Study
FINAL REPORT

March 31, 2021

Prepared for: Cities of Independence and Monmouth, Oregon

WALKER CONSULTANTS

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Executive Summary

Executive Summary

For several years, the communities of Independence and Monmouth have discussed the possibility of creating a local transit service which would link downtown Independence with downtown Monmouth and the Western Oregon University (WOU) campus. The 2019 State Legislature awarded the group a grant to pursue a feasibility analysis and provided seed money for a first phase of implementation. The City of Independence ("City"), acting as the fiscal agent for this project, engaged Walker Consultants ("Walker") to conduct a feasibility study for developing a local transit system that connects Independence and Monmouth. The goal of the feasibility study is to be a "road map" to help guide the planning and implementation of the local transit service.

Summary of Key Findings

Existing Conditions

The feasibility study includes a review of the existing conditions in Monmouth and Independence. This section summarizes some of the key findings.

- Demographics: Monmouth and Independence have a combined population of 20,409 people. A significant portion of the population (one quarter) is between 18-24 years old, which can be attributed in part to students attending Western Oregon University (WOU).
- Road Network: Overall, few street routes connect Monmouth and Independence. The primary roadway that connects the two communities is Oregon 51 (Monmouth-Independence Hwy), which enters Independence on the north side of town, runs parallel to the Willamette River, and continues west along Monmouth Street to Monmouth where it turns into Main Street. Hoffman Road, located to the north of Oregon 51, is the other roadway that connects Independence and Monmouth. Therefore, the transit service has limited routing options to provide additional connectivity between the two communities.
- Commercial Land Uses: Commercial land uses are primarily concentrated along Main Street and Monmouth Street (Oregon 51) in Independence, and along Main Street W and Highway 99W in Monmouth. Providing the potential transit service along Oregon 51 has the potential to provide more access for businesses and to promote economic development in the two communities.
- Vehicle Availability: The vast majority (94 percent) of the households in Independence and Monmouth have access to at least one vehicle. The transit service presents an opportunity to provide a transportation option for those that do not have regular access to a vehicle or do not have a vehicle.
- Transit Availability: The two primary transit routes serve Independence and Monmouth - Cherriots Regional Route 40X and Route 45. Route 40X connects Dallas, Monmouth, Independence, and Salem, from Monday to Saturday, on a fixed route along Oregon 51, providing limited stops in Monmouth and Independence. Route 45, which started operations at the beginning of 2021 (replacing the former Polk County Flex service), is a flexible route service that follows a nominal route and set of stops but with time for deviations off-route to provide service inside residential areas of Monmouth and Independence. Route 45 operates

Monday through Friday between 7:00 a.m. and 5:00 p.m., providing five trips in each direction of travel, between Dallas, Monmouth and Independence, every two hours.

- **Commute Patterns:** According to U.S. Census figures, there are 7,982 residents that are employed and commute to job locations inside and outside the two communities. Approximately 1,601 people both live and work in Independence or Monmouth:[1] The transit service has the potential to serve as a commuter route for a portion of the 1,601 people who are employed and live in the two communities. The other 6,381 residents work elsewhere in the region. Of these, approximately 1,834 Monmouth and Independence residents (23 percent of employed residents) work in Salem, which underscores the importance of Cherriots Route 40X, which connects Salem to Independence and Monmouth.

Benchmarking Analysis

To help inform the local transit service in Independence and Monmouth, Walker conducted a review of other transit services across the country with different operational models:

- Community Circulators: Routes that circulate riders throughout a community. Trolley services typically fall within this category. Services evaluated include Gig Harbor PT Trolley in Gig Harbor, Washington, Monterey-Salinas Trolley in Monterey, California, and King Street Trolley in Alexandra, Virginia.
- EV/Clean Fuel Vehicles: Services that utilize small capacity EV or other clean fuel vehicles. Several sightseeing and retail-oriented services have emerged using small electric vehicles. Services evaluated include the FRED Shuttle in San Diego, California and Rethink Your Drive in Vancouver, Washington.
- Fixed and Flex Routes: Fixed route services are traditional transit services that operate on a fixed route. Flex route services includes deviations to a fixed route. Services evaluated include the Fresno County Rural Transit Agency in Fresno County, California and the Columbia County Rider in Columbia County, Oregon.
- On Demand Services: Transit services that operate entirely on-demand. Riders typically book a ride via phone, computer, or smart phone app. Services evaluated include the West Salem Connector in Salem, Oregon, BFT Connect in Tri-Cities, Washington, and Via to Transit in the City of Seattle.
- Smart Mobility Services: Smart mobility services include first/last mile providers as well as autonomous shuttle vehicles. Services evaluated include Bishop Ranch AV Shuttle in San Ramon, California, the City of Las Vegas AV Shuttle, and the City of Columbus AV Shuttle.

[1] U.S. Census Longitudinal Employment Household Dynamics (LEHD) data 2018

Walker evaluated the potential cost of different types of transit vehicles, including the vehicles shown in the images below:

Source (clockwise): Polaris GEM e6, Ford Transit, Central State Bus Sales, Monterey Salinas Transit

The prices for the vehicles are as follows:

- The small electric vehicles, such as the Polaris GEM e6 vehicle shown in the image above have a cost range of approximately $15,000 to $40,000, depending on the selected features and capacity for transporting 5 passengers.
- Gasoline or diesel passenger vans like the Ford Transit or the Chrysler Sprinter, with a capacity of 6-15 passengers have a cost range of approximately $30,000-$60,000. Electric passenger vans are also available, such as the Ford 2022 E-Transit shown in the image above that will be available at the end of 2021, which has a cost of approximately $50,000-$70,000.
- Shuttle vehicles often have a greater passenger capacity than passenger vans, generally ranging between 15-25 passengers and 20 to 30 feet in length. New gas-powered 20' shuttle vehicles with ADA accessible wheelchair lifts typically cost at least $70,000.
- New gas or diesel-powered trolleys with capacity for 30-35 passengers typically cost at least $400,000. Electric trolleys of the same capacity are substantially more expensive and can cost up to $1 million.

After reviewing the transit service case studies and the vehicle cost research with the Project Advisory Committee (PAC), the trolley service was selected as the most desirable vehicle for Monmouth and Independence.

The trolley service would provide a fun, unique transit service for the community. Trolleys are often found in vibrant downtowns and can play an important role in promoting community identity and economic development. The trolley service should provide frequent service connecting Monmouth and Independence.

The PAC expressed a desire that the trolley vehicles be electric, consistent with the statewide trend toward zero emission vehicles. The trolley vehicles are the most expensive of the vehicle types researched, with electric vehicle trolleys costing approximately $1 million per vehicle. Therefore, if the vehicles are selected for the transit service, a grant should be pursued. If a grant cannot be obtained, an electric passenger van (such as the Ford 2022 E-Transit van) is an alternative zero emission vehicle that could be considered for the transit service.

Stakeholder Outreach

The primary stakeholder outreach effort for the feasibility study consisted of three Project Advisory Committee (PAC) meetings. The PAC consists of staff representatives from the cities of Independence and Monmouth, local elected officials, representatives from WOU, local business owners, and community leaders. The key findings from the three PAC meetings include:

- The primary goal of the project is to provide a transit connection between Monmouth and Independence that meets the needs of residents and businesses.
- The service should be unique and complement the existing Cherriots Routes 40X and 45. These routes connect both communities and provide service to Salem and Dallas. However, the service headways are infrequent and hard to rely on for time-sensitive trips.
- The study should consider a range of possible transit service options including on-demand flexible service, fixed-route service, and clean fuel vehicles.
- Consistent with Governor Brown's vision, the transit vehicles should be fuel efficient.
- It is important for the service to promote economic development for businesses in Independence and Monmouth. A trolley service was mentioned as the preferred service mode. A trolley service would also provide people with a fun way to travel and promote community identity.
- The PAC expressed a preference that it be free of charge to ride the transit service.

Service Feasibility Analysis

Service Planning

When planning a transit service, a number of service planning principles should be considered, to ensure efficient operations of service, maximum level of service and provision of an attractive travel option for most potential users. The key service planning principles considered for this study are:

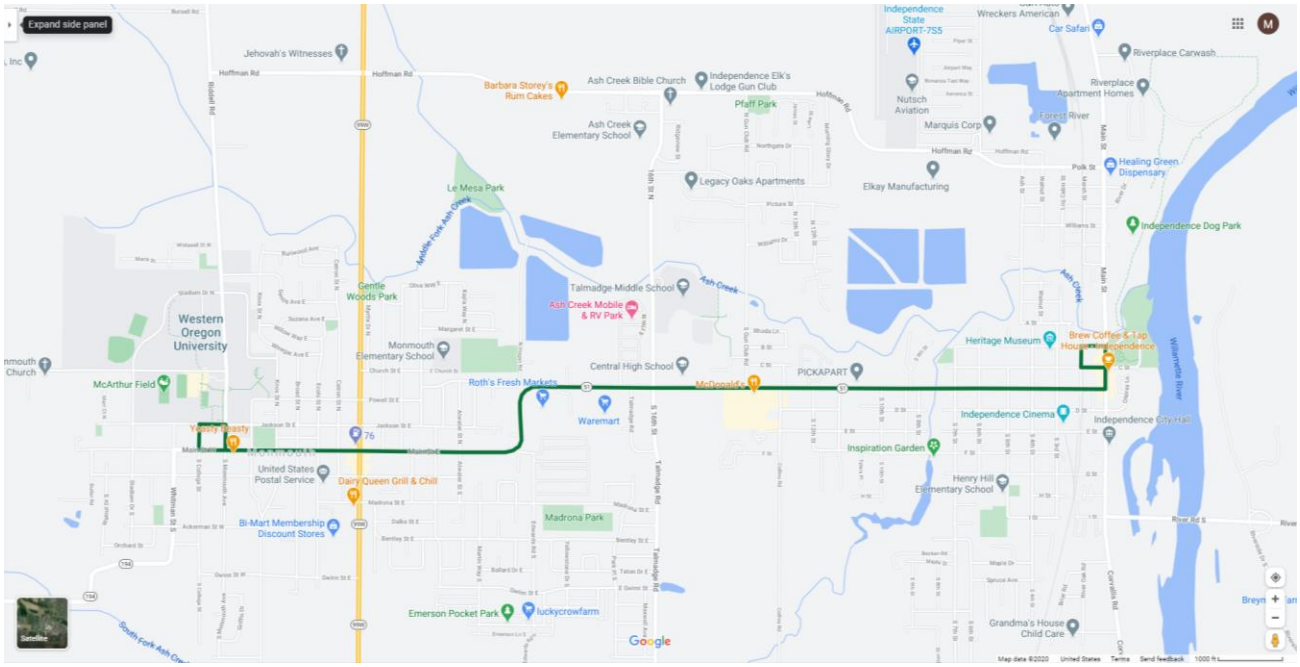
- Long and straight routes typically perform better than short and circuitous routes. The straighter they are the faster they can provide these connections.
- Most able-bodied population prefer to walk for increased service frequency. People often perceive waiting time at a transit stop as idle time compared to walking time which is active time traveling toward their destination.

- Most transit riders prefer direct routes rather than routes that have excessive deviations. Riders take into account the entire duration of their trip when planning and deciding their mode of travel, door to door from point A to point B, including walking, waiting and travel time.
- Routes are more usable by potential riders when the route alignment is the same, on the way in and on the way back.

Route Concepts

As mentioned in the Stakeholder Meeting section, three route concepts were presented to the PAC for the transit service. ES-Figure 1 on the following page shows the Option A route, a three-mile long route, from end to end, that directly connects Independence and Monmouth on Main Street and Monmouth Street. It is anticipated that a roundtrip on this route would take a bit less than 30 minutes. Two vehicles would be needed to provide a frequency of service every 15 minutes.

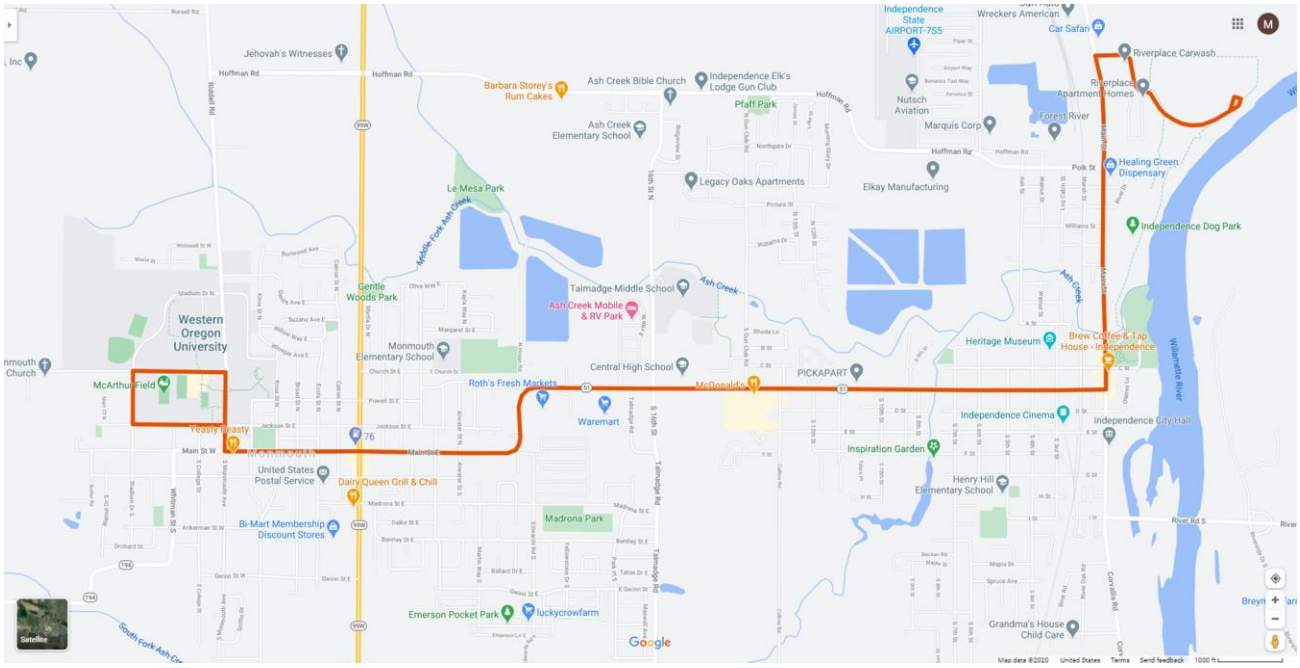
ES-Figure 1: Option A: 3-mile route (2 vehicles = 15-minute service)



Source: Google Maps, Walker Consultants, 2020.

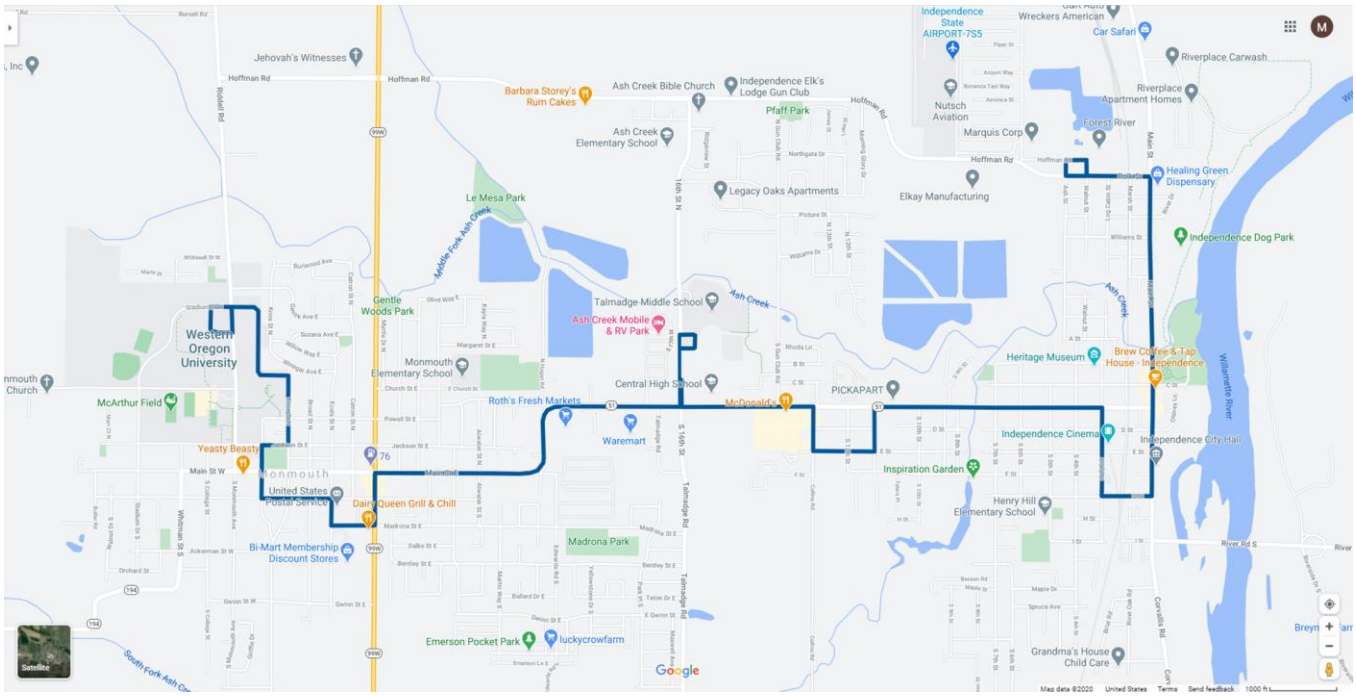
ES-Figure 2 displays Option B, a 4.5-mile long route, from end to end, that provides extended circulation to reach the WOU campus in Monmouth, and the Riverplace Apartment Homes and Riverplace Park and sports complex in Independence. It is anticipated that a roundtrip on this route would take about 45 minutes. Two vehicles would provide a frequency of service every 20-25 minutes.

ES-Figure 2: Option B: 4.5-mile-route (2 vehicles = 20/25-minute service)



Source: Google Maps, Walker Consultants, 2020.

ES-Figure 3: Option C: 6-mile Route (2 vehicles = 30-minute Service)



Source: Google Maps, Walker Consultants, 2020.

ES-Figure 3 displays Option C, a six-mile long route, from end to end, that has deviations to circulate through the WOU Campus, downtown Monmouth, the Monmouth Library and U.S. Post Office, Central High School, the Park West Apartments in Independence, Independence City Hall, and the industrial businesses on Hoffman Road near

the Independence Airport. It is anticipated that a roundtrip on this route would take 60 minutes and two vehicles would be required to provide a 30 minute service frequency.

Project Advisory Committee

PAC members were presented with the route concepts for the trolley service and discussed the benefits and challenges with the three options. Overall, members liked that:

- Option A provided a straight and fast connection between the two communities, but are concerned that it doesn't reach enough destinations.
- Option B provides direct access between the downtowns and the WOU campus and deviations on both ends to reach additional destinations.
- Option C provides access to more destinations, but PAC members were concerned about the number of deviations and additional route time as a result.

Overall, a consensus of a preferred route was not reached. However, the exercise helped the PAC understand the pros and cons of different route concepts and the impact of route length and deviations in the level of service and frequency of service that can be provided with limited funds.

The route alignments were proposed as concepts only, to understand the level of service impacts of operating routes of different lengths, under a scenario of limited funding resources. A final route alignment will be developed using this guidance before actual implementation of service.

Cost Estimates

Walker developed rough order of magnitude costs for different levels of service, measured as vehicle hours per day and days per year of service. Under each level of funding and service scenario, options that provide a minimum frequency of service of 15 minutes at least during rush hour periods or better are highlighted.

- The exercise shows that even at the $200,000 operating cost level, there are services that can be implemented on the shortest route, Option A, for the shortest period of time, 100 days, as a pilot or demonstration of service concept.
- At the $400,000 operating cost level, service can be implemented on route options A and B for a period of 200 and 100 days respectively, and for extended hours in the day.
- At the $600,000 operating cost level, service can be implemented on route options A and B, as well, but for extended periods of time of up to 300 days in the year, and for extended hours of service in the day, from 7:00 a.m. to 10:00 p.m.
- At the $800,000 operating cost level, Option A can be operated for 300 days in the year and extended hours in the day at a consistent 15-minute frequency, while Option C can be operated for 125 days in the year at the same frequency and hours of day.

In addition to the costs of operation, the cost of the vehicles is important to consider. The preferred vehicle of the PAC is the electric trolley. Electric trolleys cost approximately $1 million each. Given the limited range of electric trolleys on the market today (typically 100 miles), rapid charging would be necessary. The estimated cost of rapid charging infrastructure, similar to the infrastructure installed for Monterey Salinas Transit, is $1 million. Therefore, there would be a total estimated capital cost of $3 million for the electric trolleys and infrastructure.

Implementation Strategy

Walker has the following key recommendations for trolley service implementation:

- Route Selection: Of the three route options, Walker recommends Option A. Option A is the shortest, straightest, most direct connection between Independence and Monmouth. The service could be provided at the greatest frequency and for the lowest cost of the three options.
- Service Frequency: Consistent with the findings from the community survey and feedback from the PAC, the service should be provided with high frequency (at least every 15 minutes during the hours of 9:00 a.m. to 7:00 p.m.).
- Vehicle Type: Consistent with the findings from the community survey and feedback from the PAC, the electric trolley is the preferred vehicle for the transit service.
- Pilot Program: In order to test out the service in the community, Walker recommends that a pilot trolley service is implemented from mid-June to mid-December. This time period would include demand from tourists, visitors, and locals over the summer as well as from students and faculty during the fall semester of Western Oregon University. During the six-month period, the service should be evaluated for ridership, service usability, and the extent to which the service is meeting community goals. Walker recommends allocating $400,000 for the pilot program, which would afford:
    - 24 hours of service per day for 150 days (Monday through Saturday):
    - 1 vehicle operating from 7:00 a.m. to 7:00 p.m.
    - 1 vehicle operating from 9:00 a.m. to 9:00 p.m.
    - 15-minute frequency between 9:00 a.m. to 7:00 p.m.
    - 30-minute frequency between 7:00 a.m. and 9:00 a.m. and 7:00 p.m. and 9:00 p.m.
- Operations and Maintenance: An outside private service provider with professional CDL certified drivers would be needed to operate the service. Walker recommends that the cities of Independence and Monmouth work with Cherriots to hire the private service provider. The vehicles would be owned by the cities. Maintenance of the vehicles would be done by Cherriots or through the private service provider.
- Operational Funding: To fund this pilot period of transit service operation, Walker recommends that the City pursue the State Transportation Improvement Fund, Discretionary Fund. This fund is a competitive fund that can be used to fund a pilot program. A qualified entity or public transportation service provider is required to apply for the State Transportation Improvement Fund, Discretionary Fund. Walker recommends that the City work with Cherriots to apply for this funding.
- Capital Funding: The capital costs would be separate from the operational costs. It is recommended that grants are pursued for the capital costs. For example, Monterey Salinas Transit was awarded $1.7 million in a Clean Fuels Grant from the Federal Transit Administration (FTA) to upgrade one of their trolley vehicles to electric and install the associated infrastructure to charge the vehicle wirelessly.
- Alternative Approach: Methods to implement the service more cheaply include operation of smaller electric vehicles that are cheaper to purchase, own and maintain, the utilization of non-CDL certified drivers at a lower pay rate, and the operation of the system in-house, with a lower overhead rate. If grant funding is not available to achieve the preferred alternative articulated within this report, the City should explore an alternative with smaller electric vehicles to help bring down the likely project costs.

- **Overlap with Exiting Service:** To best serve the communities of Independence and Monmouth, Walker recommends that the transit service network in Independence and Monmouth is re-evaluated, including Route 40X, Route 45, and the proposed trolley service. Route 45 service only provides service every two hours and the travel time between Independence and Dallas is approximately one hour, while the travel time between Monmouth and Independence is approximately 30 minutes. If the results of the pilot program are successful, and if by that time the performance of Route 45 is not satisfactory, Walker recommends eliminating Route 45 and re-allocating its resources – vehicles and hours of service, to provide paratransit service within Monmouth and Independence. The provision of complementary paratransit service will provide more freedom and flexibility to Cherriots and the Cities of Monmouth and Independence to operate the trolley service and Route 40X service in a complementary fashion, with the trolley service filling in between Route 40X trips to provide community connection service. In the long-term, Cherriots and the cities should pursue additional funding to augment service on Route 40X, which provides important regional connections, and provide service trips to/from Salem every hour.
- **Transit Service Name, Branding, and Technology:** It is important to establish a project name and brand for the trolley service to promote a sense of identity for the service. For example, the King Street Trolley in Alexandria, Virginia has a recognizable brand and name. In conjunction with service naming and branding, it is important to offer a transit app to allow people to access and use the service more easily. The app should provide real-time arrival and departure information and allow users to receive notification on trolley vehicle status. For example, the Sun Trolley in Fort Lauderdale has the Sun Trolley Tracker App, which allows users to track the trolleys in real-time.
- **Next Steps:** To move toward implementation of the transit service, Walker recommends that additional study work is completed to prepare for the STIF Discretionary Grant application. Additional planning will be needed to plan the specific route, stop locations, fares and fare collection, operations structure, paratransit service (if required), bus facility and maintenance, and operational costs. This additional work will be necessary to apply for the STIF Grant. For the transit service to be successful, it is important to invest in high quality transit stops with safe and comfortable pedestrian access and amenities for waiting passengers such as seating, shelter and information. Further analyses should identify the specific location of transit service stops in the community for use of both trolley service and Route 40X, as well as pedestrian access and safety improvements such as sidewalks, crossings and lighting, ideally in concurrence with capital investment plans in the cities' transportation master plans. A capital funding source, such as Lottery Revenue Bonds is one opportunity to pursue to fund these capital improvements.

01 Introduction

Introduction

For several years, the communities of Independence and Monmouth have discussed the possibility of creating a local transit service which would link downtown Independence with downtown Monmouth and the Western Oregon University (WOU) campus. The route has historic precedence as a small train nicknamed The Peanut Roaster used to serve the area in the late 1800's. An informal group composed of representatives from the two cities, WOU, and other interested stakeholders met to research examples of similar services in other communities, and to seek funding for a formal feasibility study. Potential benefits of the service identified by the group include:

- Increasing economic opportunity throughout Independence, Monmouth and Polk County by linking the new hotel development in downtown Independence to other activities, enabling visitors to experience the region without having to drive themselves or be limited to downtown Independence.
- Improving the campus life experience for WOU students by enabling students to get to and from campus more easily, reducing parking conflicts around campus, and encouraging broader engagement with surrounding communities.
- Increasing mobility options for disadvantaged residents by offering better access to shopping, school, appointments, etc. if they do not have access to a vehicle.
- Improving availability of transit vehicles for emergency response or evacuation purposes.

The 2019 State Legislature awarded the group a grant to pursue a feasibility analysis and provided seed money for a first phase of implementation. The City of Independence ("City"), acting as fiscal agent for this project, engaged Walker Consultants ("Walker") to conduct a feasibility study for developing a local transit system that connects Independence and Monmouth. The goal of the feasibility study is to be a "road map" to help guide the planning and implementation of the local transit service.

The report includes the following sections:

- Existing Conditions Analysis: The feasibility analysis begins by evaluating key factors of the two communities and the region that would help inform the development of the transit service. This section of the report includes an analysis of the demographic and socioeconomic characteristics of the area, street network, land use, population and employment, local and regional commute patterns, existing transit service, and community destinations.
- Benchmarking Analysis: The benchmarking analysis includes an evaluation of potential transit service models and comparable case studies of other transit services around the country. The analysis also includes an evaluation of different transit vehicle types and the potential costs of these vehicles.
- Stakeholder Outreach: The stakeholder outreach section summarizes the outreach efforts completed as part of the feasibility study, including three Project Advisory Committee (PAC) meetings. The PAC consisted of staff representatives from the cities of Independence and Monmouth, local elected officials, representatives from WOU, local business owners, and community leaders. A community survey was also conducted as part of the feasibility study.
- Service Feasibility Analysis: The service feasibility analysis includes an evaluation of potential service routes and service hours, vehicle costs, service costs, and key performance indicators.

- Implementation Strategy: The implementation strategy includes the recommended service strategy, funding strategy, potential implementation phasing, project name and branding, and technology solutions.

02 Existing Conditions

Existing Conditions

Demographic and Socioeconomic Profile

To inform the local transit service planning, Walker analyzed the demographic and socioeconomic characteristics of the Monmouth and Independence community. The full analysis is included as Appendix A in this report. Key findings from the analysis are:[2]

- Monmouth and Independence have a combined population of 20,049 inhabitants. The population of the communities is relatively young, as less than ten percent of the population is 65 or older. A significant portion of the population (one quarter) is between 18-24 years old, which can be attributed in part to students attending Western Oregon University (WOU).
- Over half (58 percent) of the population is in the labor force. The transit service could provide local commuters an alternative route. For those not in the labor force (37 percent) or those unemployed (5 percent), the service could provide people with an alternative transit option to access retail and dining establishments, medical offices, libraries, civic uses, and WOU.
- Almost a quarter (24 percent) of households live below the poverty line. Over sixty percent of the population (63 percent) have a household income of less than $60,000 per year. The transit service would provide a more cost-effective means of transportation than driving, especially if the service is offered free of charge.
- The large majority of the population (85 percent) are older than 25 years old and have earned at least a high school diploma or a GED (or other).
- The Independence and Monmouth community has a high level of access to technology. 82 percent of the population has a smartphone, 87 percent has internet, and 93 percent has a computer. This high level of access to internet and technology presents an opportunity to provide transit information, such as arrival/departure times, online or through a mobile application.

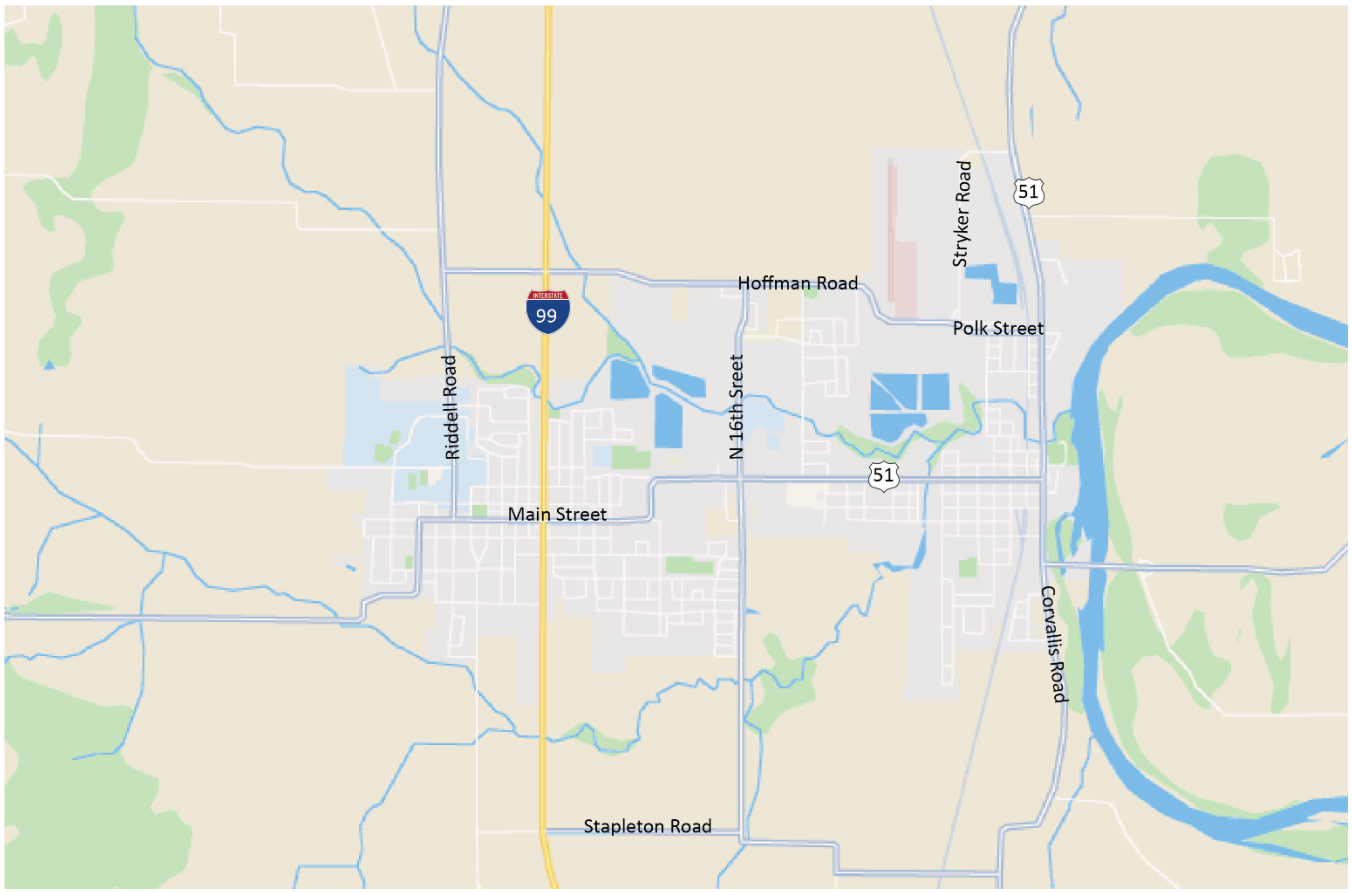
Street Network Analysis

The existing street network of the Monmouth and Independence community is a critical component to inform the route location of the local transit service. Overall, few street routes connect Monmouth and Independence. The primary roadway that connects the two communities is Oregon 51, which enters Independence on the north side of town and runs parallel to the Willamette River. About halfway through Independence, the highway turns due west and bisects Independence into northern and southern halves. Oregon 51 becomes Main Street in Monmouth. Hoffman Road, located to the north of Oregon 51, is the other roadway that connects Independence and Monmouth.

[2] Demographic and Socio-economic profile for Independence and Monmouth obtained from the U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates

Highway 99W is the major north/south route that passes through Monmouth and connects with communities to the north including Amity, McMinnville, Dayton, Dundee, Newburg and Portland, and with communities to the south including Adair Village, Lewisburg, Corvallis, and Eugene. Figure 1 contains a map with an overview of the existing street network in and around Independence and Monmouth.

Figure 1: Overview of Street Network

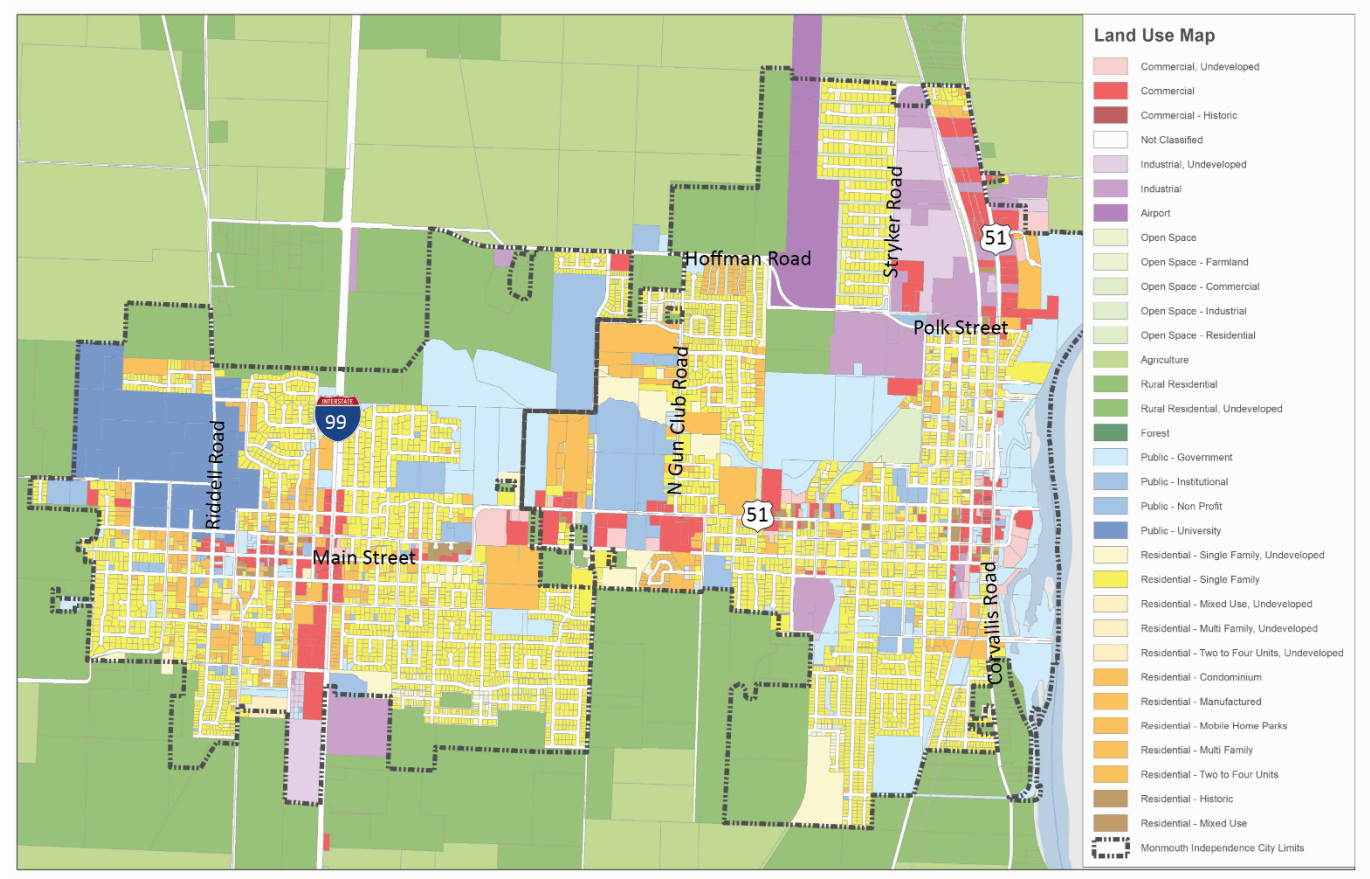


Source: Walker Consultants, 2021.

Land Use Analysis

Figure 2 demonstrates the existing land uses in the Independence and Monmouth communities. As shown in the figure, commercial land uses are primarily concentrated along Oregon 51 in Independence and Monmouth, and along Highway 99W in Monmouth. In the northern portion of Independence, between Oregon 51, Polk Street, and Stryker Road, there are several manufacturing/industrial businesses. The Independence Airport is located to the west of the industrial development. Western Oregon University is situated in the northwest portion of Monmouth.

Figure 2: Independence and Monmouth Land Use Map



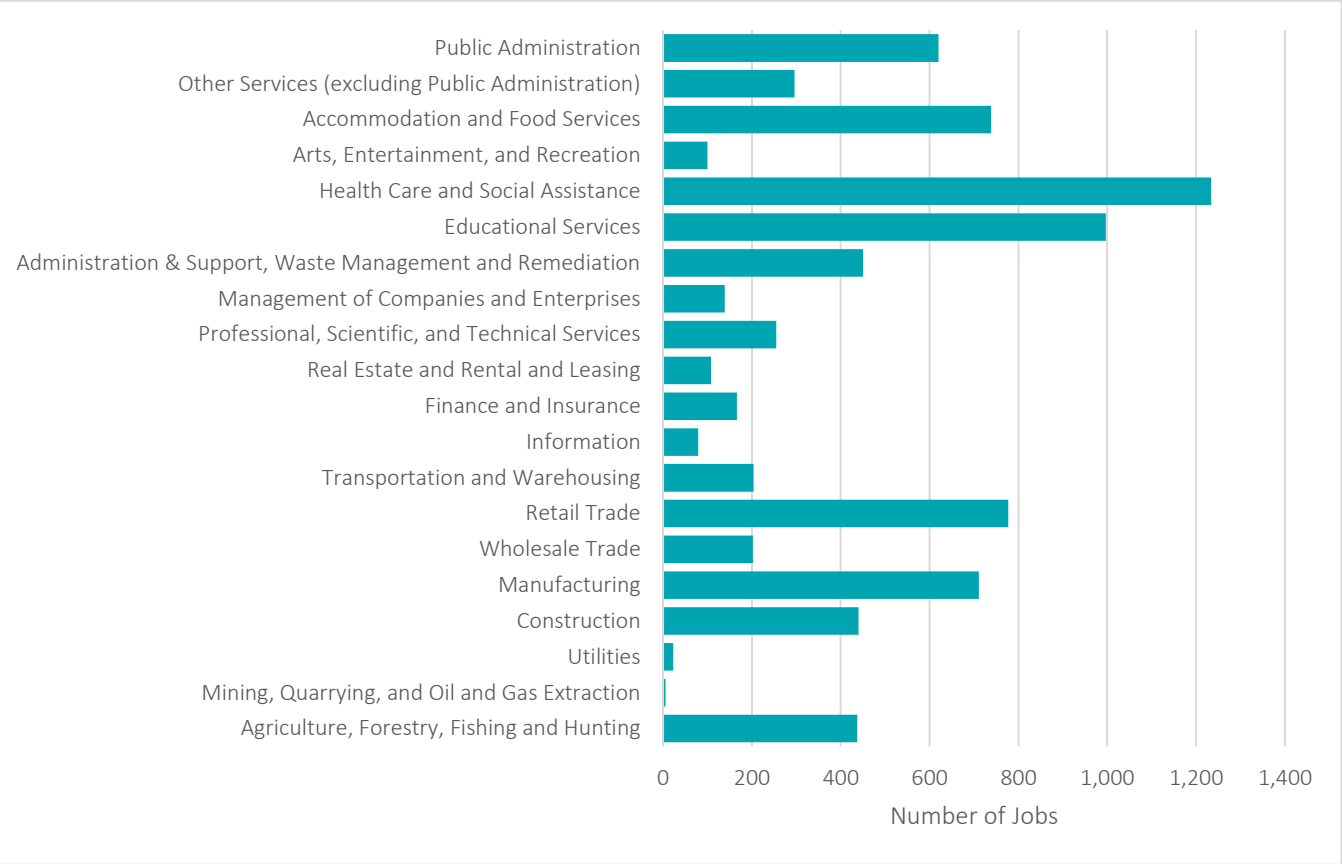
Source: Polk County Tax Assessor's Office, Walker Consultants, 2021.

Employment

There is a combined total of 7,982 jobs in the City of Independence and the City of Monmouth.[3] Figure 3 displays the jobs in Monmouth and Independence by job sector. As shown in the figure, the largest job sector is health care and social assistance. After health care, educational services and retail trade are the two sectors with the largest employment.

[3] Data source: US Census Bureau LEHD data 2018. LEHD data cross references ACS commute-to-work data with quarterly employment and wages reports to identify jobs and household dynamics. The cross-reference results in a smaller sample size than employment status reported in the ACS (9,116 employees). https://lehd.ces.census.gov/

Figure 3: Monmouth and Independence Jobs by NAICS Employment Sector



Source: U.S. Census LEHD 2018 data, Walker Consultants, 2020.

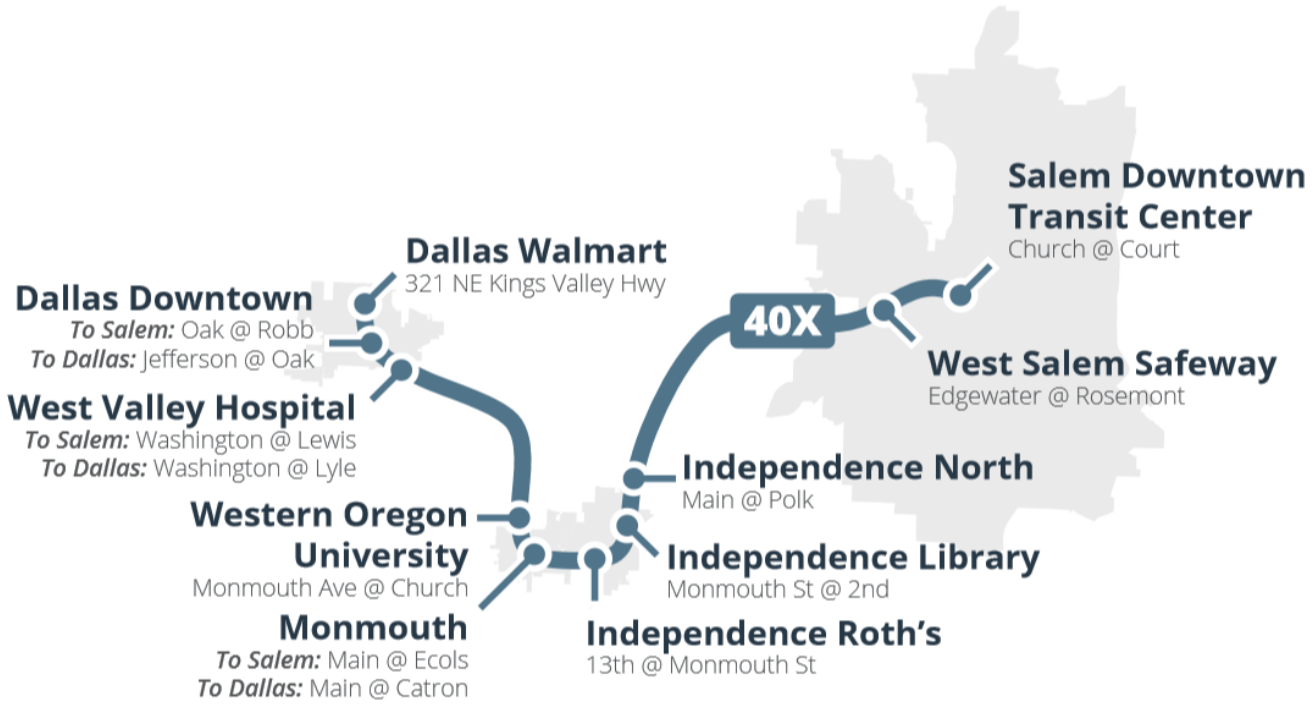
Existing Transit Service

The two primary transit routes that serve Independence and Monmouth are the Cherriots Regional Route 40X and the new Route 45 which started operations at the beginning of 2021 and replaced the former Polk County Flex service.

Route 40X

Route 40X is a fixed-route bus service operated by Cherriots that connects Dallas, Monmouth, Independence, and Salem. The service originates in Dallas, travels through downtown Dallas, West Valley Hospital, Western Oregon University, Monmouth, Independence and West Salem, and ends at the Salem Downtown Transit Center. The route map for 40X is shown in Figure 4.

Figure 4: Cherriots 40X Service Route Map



Source: Cherriots.

Route 40X service is in operation Monday through Saturday. The Route 40X weekday schedule is shown in Figure 5. On weekdays, the service runs in 60, 90 and 180-minute intervals. The service starts operations at 5:57 a.m. at the Dallas Walmart and ends at 9:28 p.m. at the same location, with eight trips from Dallas to Salem between 5:57 a.m. and 7:27 p.m., and eight return trips from Salem to Dallas between 7:00 a.m. and 8:30 p.m.

The Route 40X weekend schedule is shown in Figure 6. On Saturday, the service is more limited, and only runs four times in each direction with trips starting in Dallas at 8:55 and 11:12 a.m. and 3:00 and 5:30 p.m., and trips starting in Salem at 7:43 and 10:05 a.m. and 4:13 and 6:42 p.m. The scheduling of trips indicates a pattern of trips leaving Salem in the morning to return in the afternoon, and a pattern of trips leaving Dallas later in the morning and returning later in the evening.

Ridership data in the month of October 2019 shows that there was an average of 186 boardings each weekday (or about 12 passengers on each trip), and 75 boardings each Saturday (or about 9 passengers on each trip). These numbers suggest that the lower ridership on Saturdays is largely explained by reduced levels of service, and that more Saturday service could generate more passenger trips.

Figure 5: Route 40X Weekday Schedule

Weekdays | *Días de semana* | **To Dallas**									
Salem Downtown Transit Center - Bay T	**West Salem Safeway**	**Independence North**	**Independence Library**	**Independence Roth's**	**Monmouth**	**Western Oregon University**	**West Valley Hospital**	**Dallas Downtown**	**Dallas Walmart**
Church @ Court	Edgewater @ Rosemont	Main @ Polk	Monmouth St @ 2nd	13th @ Monmouth St	Main @ Catron	Monmouth Ave @ Church	Washington @ Lyle	Jefferson @ Oak	321 NE Kings Valley Hwy
7:00a	7:07a	7:21a	7:24a	7:28a	7:37a	7:41a	7:54a	7:56a	8:00a
8:00a	8:07a	8:21a	8:24a	8:28a	8:37a	8:41a	8:54a	8:56a	9:00a
9:30a	9:37a	9:51a	9:54a	9:58a	10:06a	10:10a	10:23a	10:25a	10:30a
12:30p	12:37p	12:51p	12:54p	12:58p	1:06p	1:11p	1:24p	1:26p	1:32p
3:00p	3:07p	3:21p	3:24p	3:28p	3:38p	3:42p	3:55p	3:57p	4:02p
4:30p	4:37p	4:51p	4:54p	4:58p	5:08p	5:12p	5:25p	5:27p	5:32p
5:30p	5:40p	5:54p	5:57p	6:01p	6:09p	6:13p	6:26p	6:28p	6:33p
8:30p	8:36p	8:50p	8:53p	8:57p	9:05p	9:08p	9:21p	9:23p	9:28p

Weekdays | *Días de semana* | **To Salem**									
Dallas Walmart	**Dallas Downtown**	**West Valley Hospital**	**Western Oregon University**	**Monmouth**	**Independence Roth's**	**Independence Library**	**Independence North**	**West Salem Safeway**	**Salem Downtown Transit Center**
321 NE Kings Valley Hwy	Oak @ Robb	Washington @ Lewis	Monmouth Ave @ Church	Main @ Ecols	13th @ Monmouth St	Monmouth St @ 2nd	Main @ Polk	Edgewater @ Rosemont	Church @ Court
5:57a	6:01a	6:05a	6:17a	6:21a	6:27a	6:30a	6:32a	6:45a	6:50a
6:47a	6:51a	6:55a	7:07a	7:12a	7:18a	7:21a	7:24a	7:36a	7:50a
8:25a	8:29a	8:33a	8:45a	8:50a	8:56a	8:59a	9:02a	9:14a	9:20a
11:23a	11:28a	11:32a	11:44a	11:49a	11:55a	11:58a	12:01p	12:13p	12:20p
1:54p	1:59p	2:03p	2:15p	2:20p	2:26p	2:30p	2:33p	2:44p	2:50p
3:20p	3:25p	3:29p	3:41p	3:46p	3:53p	3:57p	4:00p	4:13p	4:20p
4:20p	4:25p	4:29p	4:41p	4:46p	4:53p	4:57p	5:00p	5:13p	5:20p
7:27p	7:31p	7:35p	7:47p	7:50p	7:56p	8:00p	8:02p	8:15p	8:20p

Source: Cherriots.

Figure 6: Route 40X Saturday Schedule

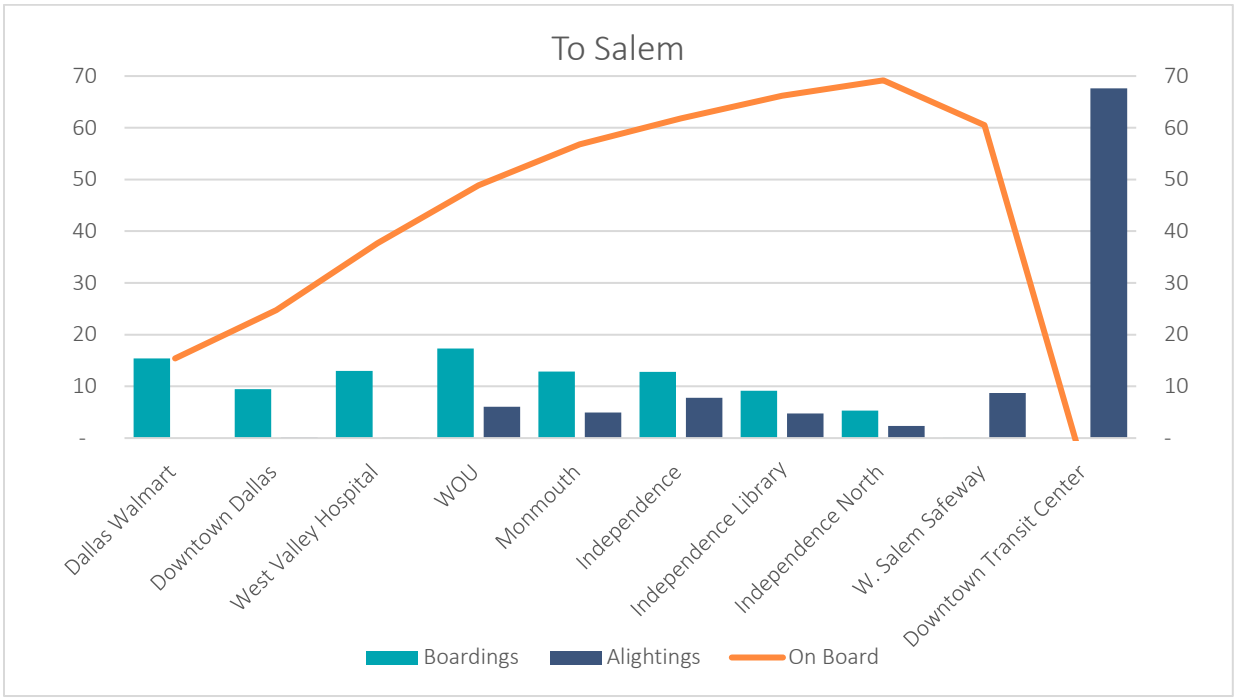
Saturdays | *Sábados* | **To Dallas**									
Salem Downtown Transit Center - Bay T	**West Salem Safeway**	**Independence North**	**Independence Library**	**Independence Roth's**	**Monmouth**	**Western Oregon University**	**West Valley Hospital**	**Dallas Downtown**	**Dallas Walmart**
Church @ Court	Edgewater @ Rosemont	Main @ Polk	Monmouth St @ 2nd	13th @ Monmouth St	Main @ Catron	Monmouth Ave @ Church	Washington @ Lyle	Jefferson @ Oak	321 NE Kings Valley Hwy
8:55a	9:02a	9:16a	9:19a	9:23a	9:32a	9:36a	9:49a	9:51a	9:55a
11:12a	11:19a	11:33a	11:36a	11:40a	11:49a	11:53a	12:06p	12:08p	12:12p
3:00p	3:07p	3:21p	3:24p	3:28p	3:37p	3:41p	3:54p	3:56p	4:00p
5:30p	5:37p	5:51p	5:54p	5:58p	6:07p	6:11p	6:24p	6:26p	6:30p

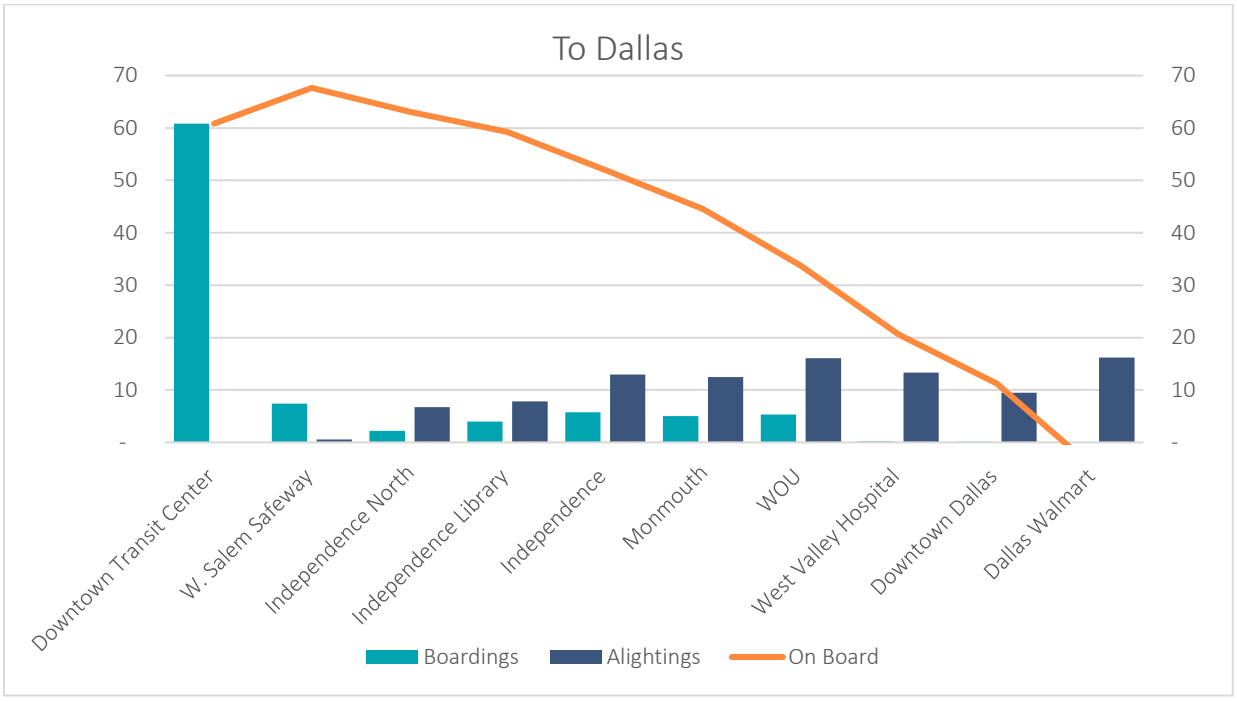
Saturdays | *Sábados* | **To Salem**									
Dallas Walmart	**Dallas Downtown**	**West Valley Hospital**	**Western Oregon University**	**Monmouth**	**Independence Roth's**	**Independence Library**	**Independence North**	**West Salem Safeway**	**Salem Downtown Transit Center**
321 NE Kings Valley Hwy	Oak @ Robb	Washington @ Lewis	Monmouth Ave @ Church	Main @ Ecols	13th @ Monmouth St	Monmouth St @ 2nd	Main @ Polk	Edgewater @ Rosemont	Church @ Court
7:43a	7:48a	7:52a	8:04a	8:09a	8:15a	8:18a	8:21a	8:33a	8:40a
10:05a	10:10a	10:14a	10:26a	10:31a	10:37a	10:40a	10:43a	10:55a	11:02a
4:13p	4:18p	4:22p	4:34p	4:39p	4:45p	4:48p	4:51p	5:03p	5:10p
6:42p	6:47p	6:51p	7:03p	7:08p	7:14p	7:17p	7:20p	7:32p	7:39p

Source: Cherriots.

Figure 7 summarizes the ridership activity by direction of travel for Route 40X on weekdays. On the trips to Salem, riders board the service in stops throughout Dallas, Monmouth and Independence. A few riders traveling from Dallas get off in Monmouth and Independence, while the rest continue their trip until the Downtown Transit Center in Salem. On the trips to Dallas, the majority of riders board the service at the Downtown Transit Center in Salem and exit in stops throughout Independence, Monmouth and Dallas.

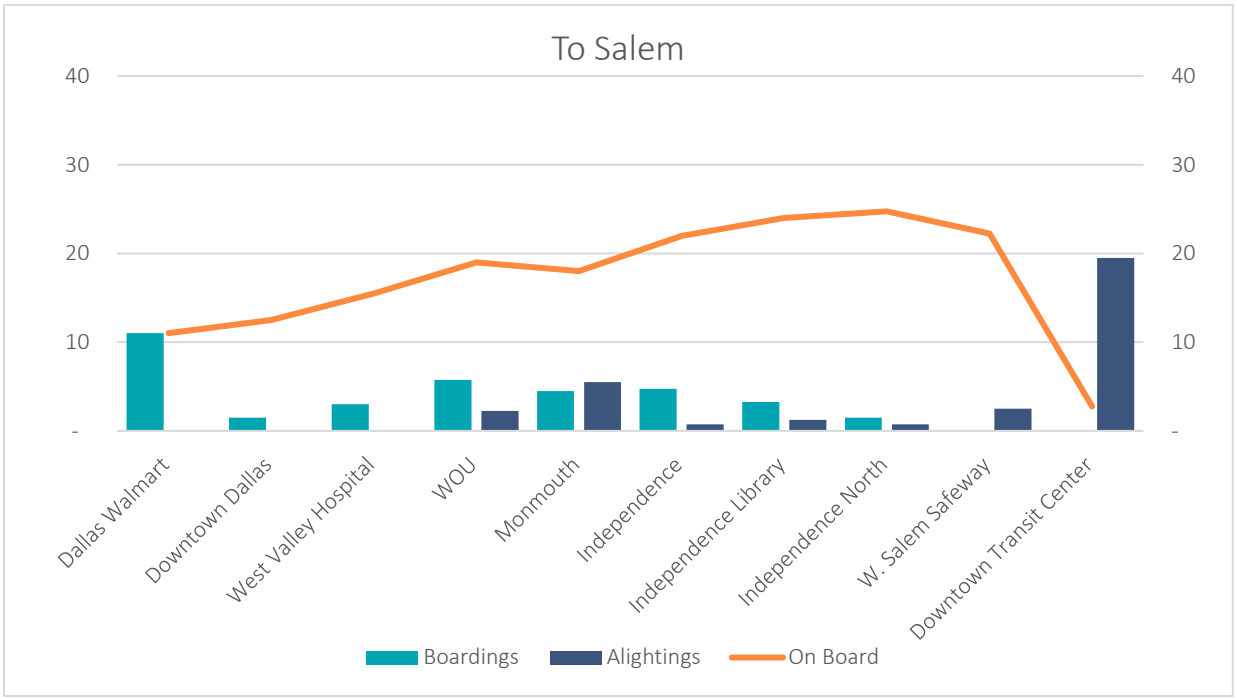
Figure 7: Route 40X Average Daily Ridership – Weekday (October 2019)

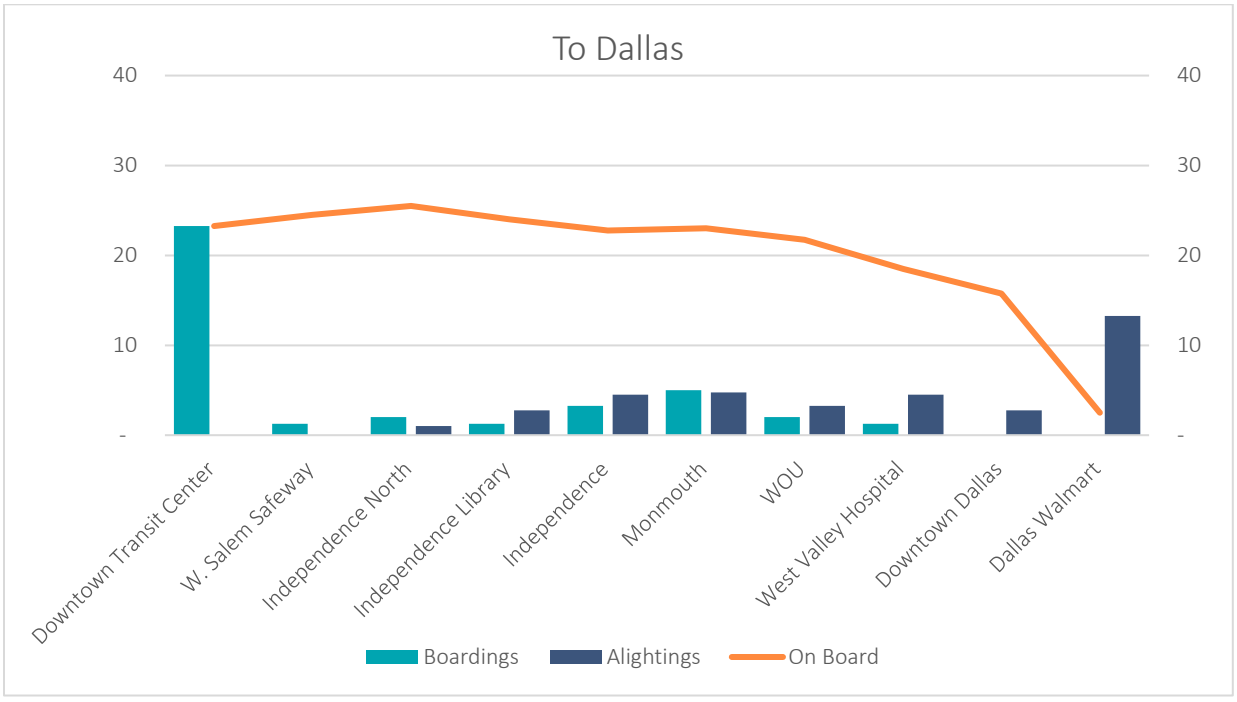




Source: data – Cherriots, analysis- Walker Consultants, 2020.

Figure 8: Route 40X Average Daily Ridership – Saturday (October 2019)





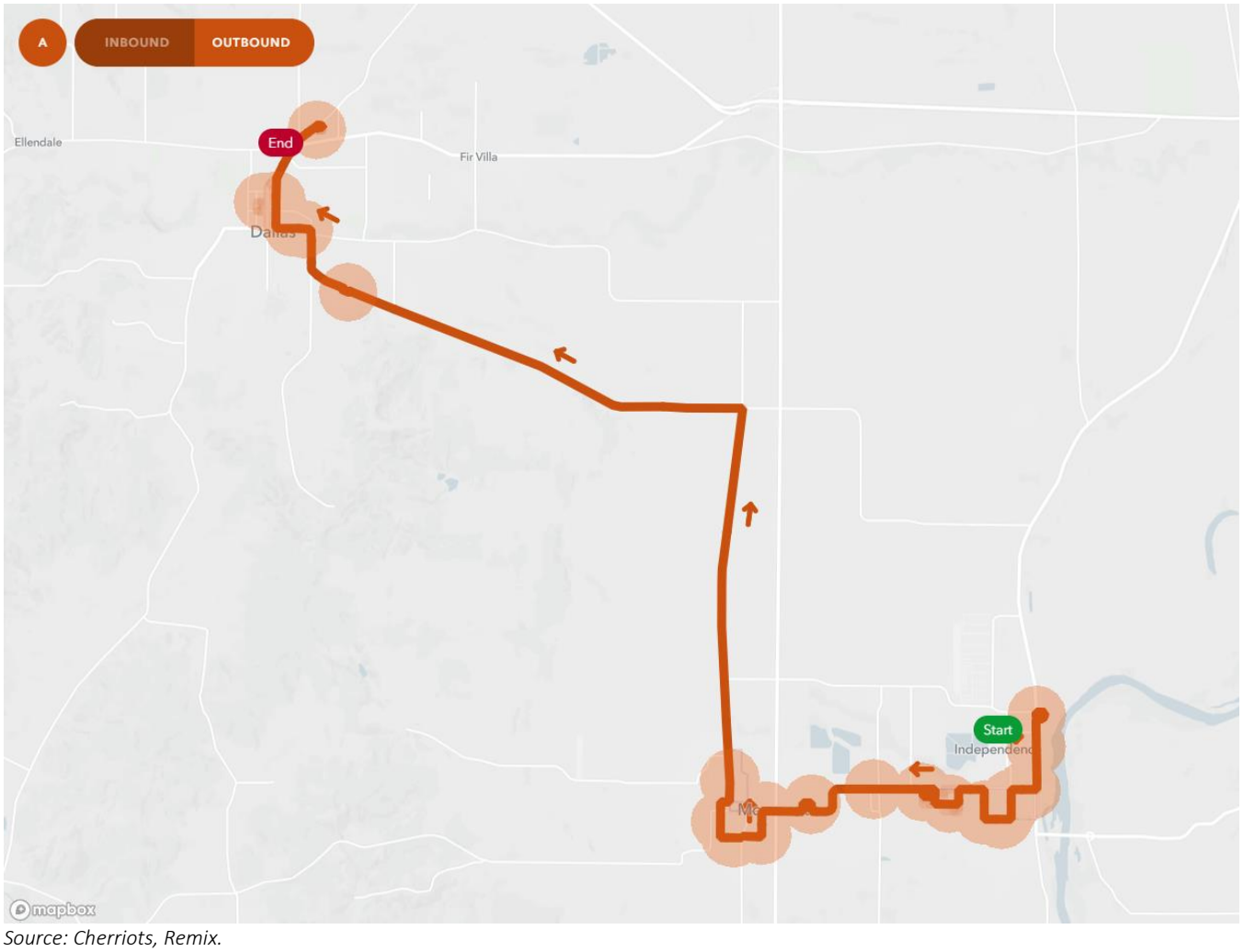
Source: data – Cherriots, analysis- Walker Consultants, 2020.

Figure 8 summarizes the ridership activity by direction of travel for Route 40X on Saturday. Ridership in Dallas is similar to weekday levels, but much lower in Monmouth and Independence. The difference suggests that weekday trips between Monmouth, Independence and Salem are largely commute related, while trips between Monmouth, Independence and Dallas are non-work related.

Route 45

Cherriots has replaced the current Polk County Flex service with a new Route 45. Route 45 will operate Monday through Friday between 7:00 a.m. and 5:00 p.m., providing five trips in each direction of travel every two hours. The service connects the communities of Dallas, Independence and Monmouth only, as shown in Figure 9 below. The service is operated as a fixed route but with excess time in the schedule to offer riders the ability to request "off route" deviations within three-quarters of a mile of the regular route. The service schedule has been planned to take one hour to get from Dallas to Independence and vice-versa, and could provide two deviations per trip, one in each community. The service started on January 4, 2021.

Figure 9: Route 45 Proposed Route Map



Source: Cherriots, Remix.

Commute Patterns

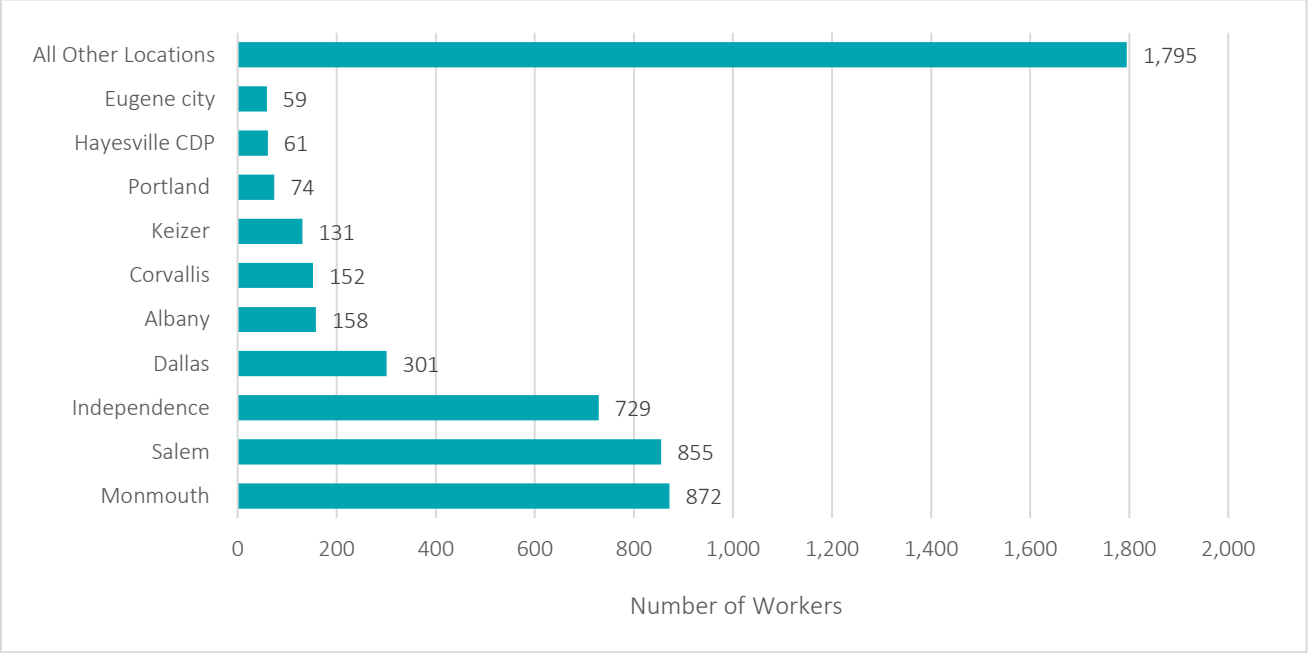
The vast majority (94 percent) of the households in Independence and Monmouth have access to at least one vehicle. Over three quarters (76 percent) of the population commute to work by driving alone, and less than one percent commute by transit.[4] The proposed transit service presents an opportunity to shift the commute mode away from driving alone, thereby reducing Vehicle Miles Traveled (VMT).

The following statistics summarize the number of people who live and work in Monmouth and Independence:[5]

- 7,982 employed workers live in Monmouth and Independence.
  - 6,381 of them live in Monmouth and Independence but are employed outside, and
  - 1,601 are employed and live in Monmouth and Independence
- 5,187 workers are employed in Monmouth and Independence.
  - 3,586 of them are employed in Monmouth and Independence but live outside the communities.

In other words, transit service has the potential to serve as commuter route for a portion of the 1,601 people who are employed and live in Monmouth and Independence. The service may also serve a portion of the 6,381 workers that live in the area but are employed outside and the 3,586 people that work in Monmouth and Independence but live outside of the area.

Figure 10: Where Workers Live who are Employed in Monmouth and Independence (Top Ten Cities/CDPs)



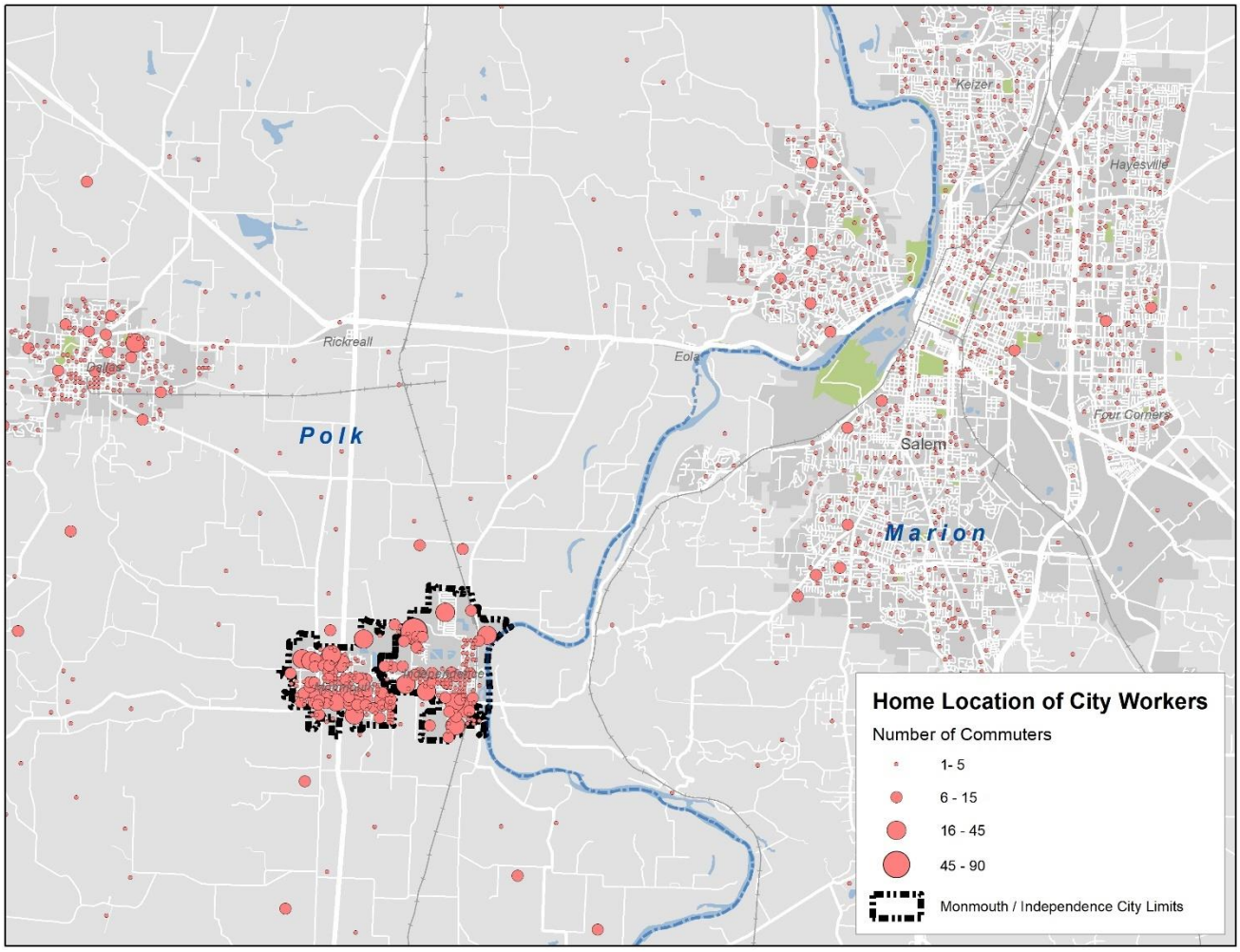
Source: U.S Census LEHD 2018 Data, Walker Consultants, 2021.

[4] U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates
[5] U.S. Census LEHD data 2018

Figure 10 numerically summarizes the home origin of all people that work in Monmouth and Independence. As shown in the figure, Monmouth has the largest share of workers (872 out of 5,187), followed by Salem (855) and Independence (729). The fact that a high concentration of workers in Monmouth and Independence also live in Monmouth and Independence presents an opportunity for the transit service to serve as a commuter route for Monmouth and Independence residents. Salem has a large portion of people commuting into Monmouth and Independence. Salem is connected by transit service through the existing Cherriots Regional Route 40X (as discussed in the previous section).

Figure 11 displays the home origin of those that work in Monmouth and Independence on a regional map. It shows that most workers living in Salem (and working in Monmouth/Independence) are dispersed throughout Keizer, Salem and West Salem city areas. Those living in Dallas are relatively more clustered and potentially have better options to access a direct transit service connecting with Monmouth and Independence.

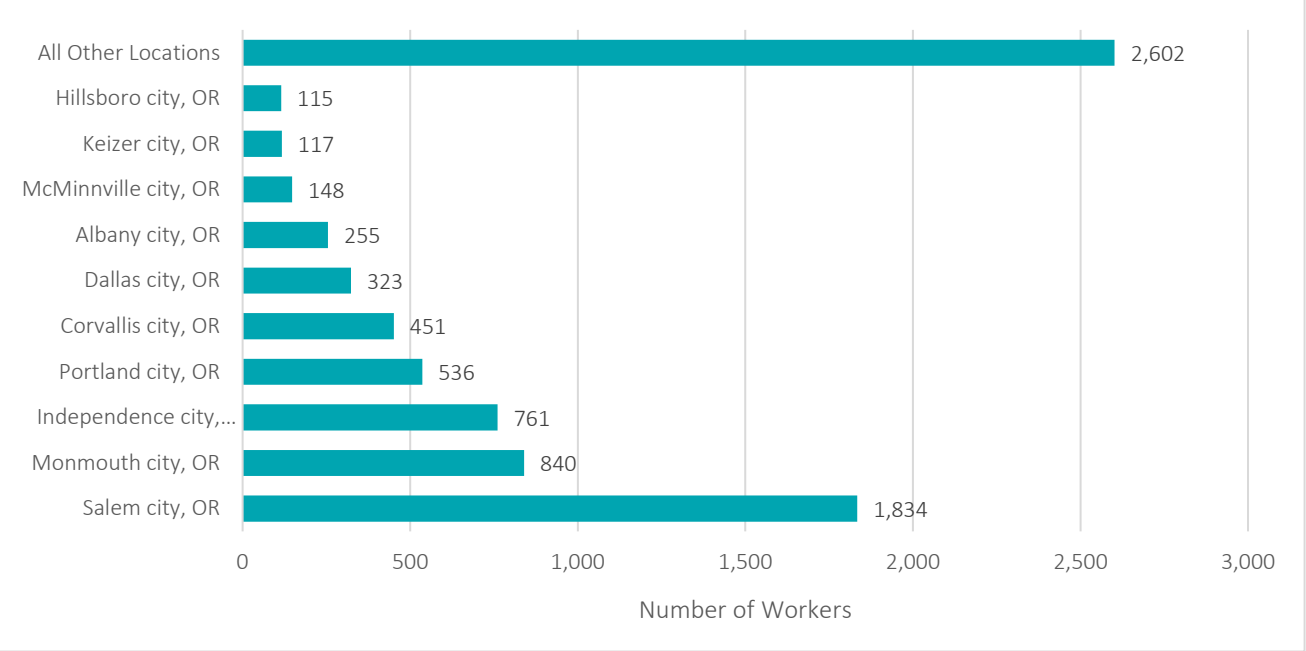
Figure 11: Home Location of Monmouth and Independence Workers



Source: U.S Census LEHD 2018 Data, Walker Consultants, 2020.

Figure 12 summarizes where workers are employed who live in Monmouth and Independence. As shown in the figure, Salem has the largest share of workers (1,834 out of a total of 7,982 workers). After Salem, Monmouth (840 workers) and Independence (761) have the largest share.

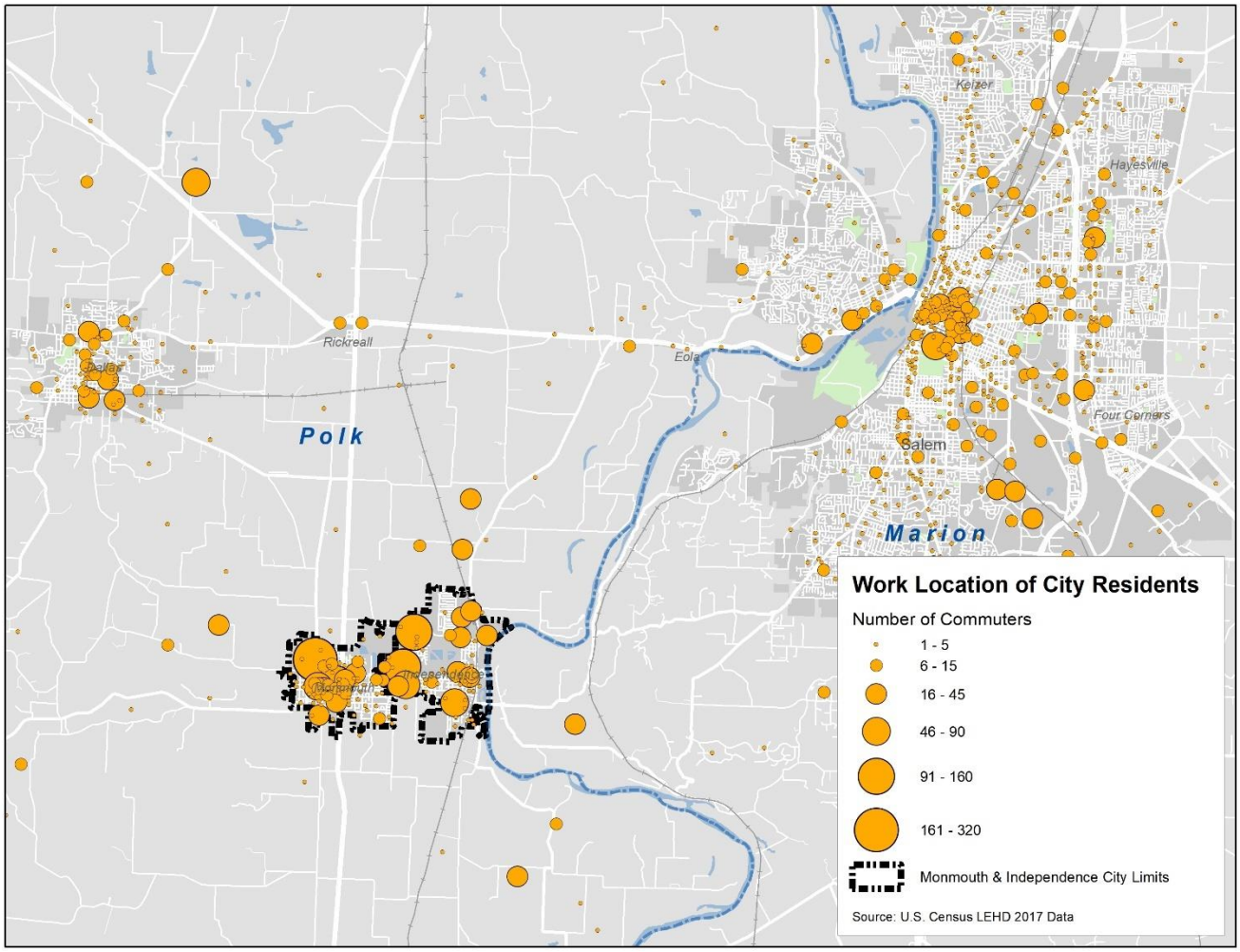
Figure 12: Where Workers are Employed who Live in Monmouth and Independence (Top Ten Cities)



Source: U.S Census LEHD 2018 Data, Walker Consultants, 2020.

Figure 13 displays the work location of Monmouth and Independence residents on a regional map. It shows that many workers living in Monmouth and Independence commute to locations in Dallas and downtown Salem, as well as locations near the two communities and in employment areas along I-5.

Figure 13: Work Location of Monmouth and Independence Residents



Source: U.S Census LEHD 2018 Data, Walker Consultants, 2020.

03 Benchmarking Analysis

Benchmarking Analysis

Transit Service Case Studies

To help inform the local transit service in Independence and Monmouth, Walker conducted a review of other transit services across the country with different operational models:

- Commuter Circulators: Routes that circulate riders throughout a community. Trolley services typically fall within this category. Services evaluated include Gig Harbor PT Trolley in Gig Harbor, Washington, Monterey-Salinas Trolley in Monterey, California, and King Street Trolley in Alexandra, Virginia.
- EV/Clean Fuel Vehicles: Services that utilize small capacity EV or other clean fuel vehicles. Several sightseeing and retail-oriented services have emerged using small electric vehicles. Services evaluated include the FRED Shuttle in San Diego, California and Rethink Your Drive in Vancouver, Washington.
- Fixed and Flex Routes: Fixed route services are traditional transit services that operate on a fixed route. Flex route service includes deviations to a fixed route. Services evaluated include the Fresno County Rural Transit Agency in Fresno County, California and the Columbia County Rider in Columbia County, Oregon.
- On Demand Services: Transit services that operate entirely on-demand. Riders typically book a ride via phone, computer, or smart phone app. Services evaluated include the West Salem Connector in Salem, Oregon, BFT Connect in Tri-Cities, Washington, and Via to Transit in the City of Seattle.
- Smart Mobility Services: Smart mobility services include first/last mile providers as well as autonomous shuttle vehicles. Services evaluated include Bishop Ranch AV Shuttle in San Ramon, California, the City of Las Vegas AV Shuttle, and the City of Columbus AV Shuttle.

A full discussion of the transit service case studies can be found in Appendix B.

Vehicle Cost Research

When evaluating potential transit service models, an important consideration is the capital expense of the transit vehicle. Therefore, Walker evaluated the potential cost of different types of transit vehicles, including:

- Small electric vehicle (5 passengers)
- Passenger van (6-15 passengers)
- Shuttle (15-25 passengers)
- Trolley (25-35 passengers)

To conduct this research, Walker researched new and used vehicles for sale on the open market, as well as recent vehicle purchases by transit agencies. This summary of vehicle cost research represents Rough Order of Magnitude cost estimates based on Walker research and experience and are subject to change. Costs should not be used for financing purposes. Because Walker Consultants does not control the cost of labor materials, equipment or services furnished by others, methods of determining prices, or competitive bidding or market conditions, any opinions rendered as to costs are made on the basis of our experience and represent our judgement as experienced qualified

professionals, familiar with the industry. Walker cannot and does not guarantee that proposals, bids, or actual costs will not vary from its opinions of cost.

Small Electric Vehicles

The small electric vehicles, such as the Polaris GEM e6 vehicle shown in the image below has a cost range of approximately $15,000 to $40,000. These vehicles can have a variety of upgrades and customization options that would impact the price of the vehicle, such as adding vehicle doors for use in cold or inclement weather, LED headlights, an expanded cargo area, a battery with a greater electric range, premium entertainment systems, seat material, and upgraded wheels.

Source: Polaris

Passenger Van

Gasoline or diesel passenger vans with a capacity of 6-15 passengers have a cost range of approximately $30,000-$60,000. The low end of the price range includes a standard minivan, such as a Toyota Sienna or Chrysler Pacifica. The price for this type of van varies based on the trim level, but typically starts at approximately $30,000. Larger passenger vans, such as the Ford Transit Van (shown in the image below) or the Mercedes Benz Sprinter van have greater passenger capacity at 12-15 passengers. These vehicles typically are more expensive, in the range of $40,000-$60,000. Used passenger vans can also be purchased with prices that vary widely depending on the vehicle type, mileage, local market, and vehicle condition, costing between approximately $15,000-$40,000. Electric passenger vans are also available, such as the Ford 2022 E-Transit shown in the image below that will be available at the end of 2021, which has a cost of approximately $50,000-$70,000.

Source: Ford

Shuttle Vehicle

Shuttle vehicles often have a greater passenger capacity than vans, generally ranging between 15-25 passengers and 20 to 30 feet in length. New gas-powered 25' shuttle vehicles with ADA accessible wheelchair lifts typically cost at least $70,000. An example of a shuttle vehicle is shown in the image below. Used shuttles can also be purchased with prices that vary widely depending on the vehicle type, local market, mileage, and vehicle condition and can cost as low as $20,000.

Source: Central States Bus Sales

Trolley Vehicle

Trolley vehicles (typical passenger capacity of 25-35 people) are the most expensive of the transit vehicles types researched. Trolley costs can vary widely based on factors such as the passenger capacity, interior finishing, exterior style, mileage (for used trolleys), and fuel type. An example of a trolley is shown in the image below. The fuel for the trolley vehicles can be gas, diesel, electric, or CNG. New gas or diesel-powered trolleys typically cost at least $400,000. Used trolleys vary depending on the mileage, can be found for as low as $50,000 to $60,000. Electric trolleys are substantially more expensive and can cost up to $1 million.

Source: Monterey Salinas Transit.

Benchmarking Analysis Conclusion

After reviewing the transit service case studies and the vehicle cost research with the PAC, a trolley style community circulator service was selected as the most appropriate service for Monmouth and Independence. The trolley service would provide a fun, unique transit service for the community. Trolleys are often found in vibrant downtowns and can play an important role in promoting community identify and economic development.

The PAC expressed a desire that the trolley vehicles be electric, consistent with the statewide trend toward zero emission vehicles. Trolley vehicles were the most expensive of the vehicle types researched, with electric vehicle trolleys costing approximately $1 million per vehicle. Therefore, if the vehicles are pursued for the transit service, a grant should be pursued.

If a large grant cannot be obtained, the Ford E-Transit vehicles are an alternative zero emission vehicle that could be considered for the transit service at a fraction of the cost. The E-Transit could be purchased with local funds or a small grant.

04 Stakeholder Outreach

Stakeholder Outreach

The primary stakeholder outreach effort for the feasibility study consisted of three Project Advisory Committee (PAC) meetings. The PAC consists of staff representatives from the cities of Independence and Monmouth, local elected officials, representatives from WOU, local business owners, and community leaders. The PAC meetings all occurred virtually via Zoom on the following dates:

- PAC Committee Meeting #1: September 23, 2020
- PAC Committee Meeting #2: October 21, 2020
- PAC Committee Meeting #3: December 2, 2020

PAC Meeting #1

The first PAC meeting included a discussion of the overall purpose and goals of the transit feasibility study, an overview of the different types of operational models that could be used to operate the service, current local planning and economic development efforts, and community outreach efforts. Detailed notes from PAC Meeting #1 are included in Appendix C of this report. Some of the key findings from the first PAC meeting include:

- The primary goal of the project is to provide a transit connection between Monmouth and Independence that meets the needs of residents and businesses.
- It is important for the transit service to provide a transit option for Western Oregon University (WOU) students.
- Other goals of the service include reducing traffic and delaying the need to expand arterial streets and helping with emergency evacuation.
- The transit feasibility study effort is a joint effort between the Cities of Independence, Monmouth, and Western Oregon University.
- The service should be unique and complement the existing Cherriots routes 40X and 45. These routes connect both communities and provide service to Salem and Dallas. However, the service headways are infrequent and hard to rely on for work trips or time-sensitive trips.
- The study should consider a range of possible transit service options including on-demand flexible service, fixed-route service, and clean fuel vehicles.
- Important considerations for the transit service include whether to operate year-round or just during the summer.
- The study should evaluate whether the service should be a circulator service serving both cities and WOU and/or whether it should provide circulator service for local wineries.
- For the service operation, it was suggested that Cherriots may operate the service. The drivers could include senior resident volunteers or WOU students via a work study program.
- Consistent with Governor Brown's vision, the transit vehicles should be fuel efficient.

- In terms of funding, funding options such as grants, levying a fee for WOU students, selling advertising space within or outside of the vehicle, or apply for state/federal funding. The PAC recommended that the service not be funded through tax increases.
- It was discussed that the service will need to be ADA accessible to qualify for state/federal funding, either through vehicle ADA accessibility or by offering paratransit service.
- PAC Committee members provided feedback on the draft online Community Survey, including suggesting that questions about rider preferences during the COVID-19 pandemic be included.

PAC Meeting #2

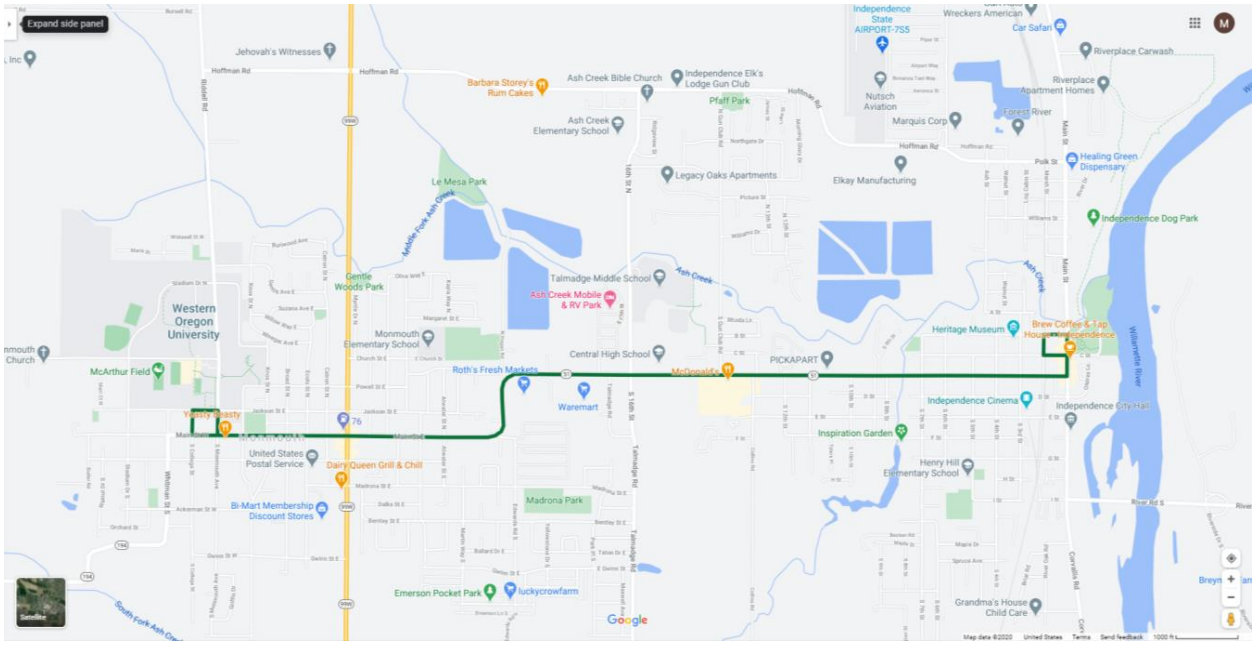
The second PAC meeting included an update of the responses received from the online Community Survey, discussion of existing and future Cherriots service, transit planning principles, cost of vehicles and service, and funding opportunities. Some of the key findings from the second PAC meeting include:

- It is important for the service to promote economic development for businesses in Independence and Monmouth. A trolley service was mentioned as the preferred service mode. A trolley service would also provide people with a fun way to travel and promote community identity.
- It was suggested the local businesses in Independence and Monmouth could sponsor one or more of the transit stops.
- The Wolf Ride service provides a transportation option for WOU students during the evening, but students need a transit option during the day.
- Cherriots is the qualified agency for the Statewide Transportation Improvement Fund (STIF) formula funds.
- The PAC expressed a preference that it will be free to ride the transit service.
- As a follow up to the PAC Meeting #2, Walker and Independence City staff conducted a stakeholder interview with a representative from Marquis Spa.
    - A high proportion of Marquis Spa employees carpool to work.
    - The proposed transit service would be helpful to connect the communities of Monmouth and Independence, but it will not necessarily be convenient to Marquis employees that commute from outside Monmouth and Independence.
    - During the COVID-19 pandemic, there is concern about employees riding the transit service.
    - Funding contributions or advertising from Marquis and other employers in the Airport area would only be a possibility if there is a direct and significant benefit for employees for their commute trip.

PAC Meeting #3

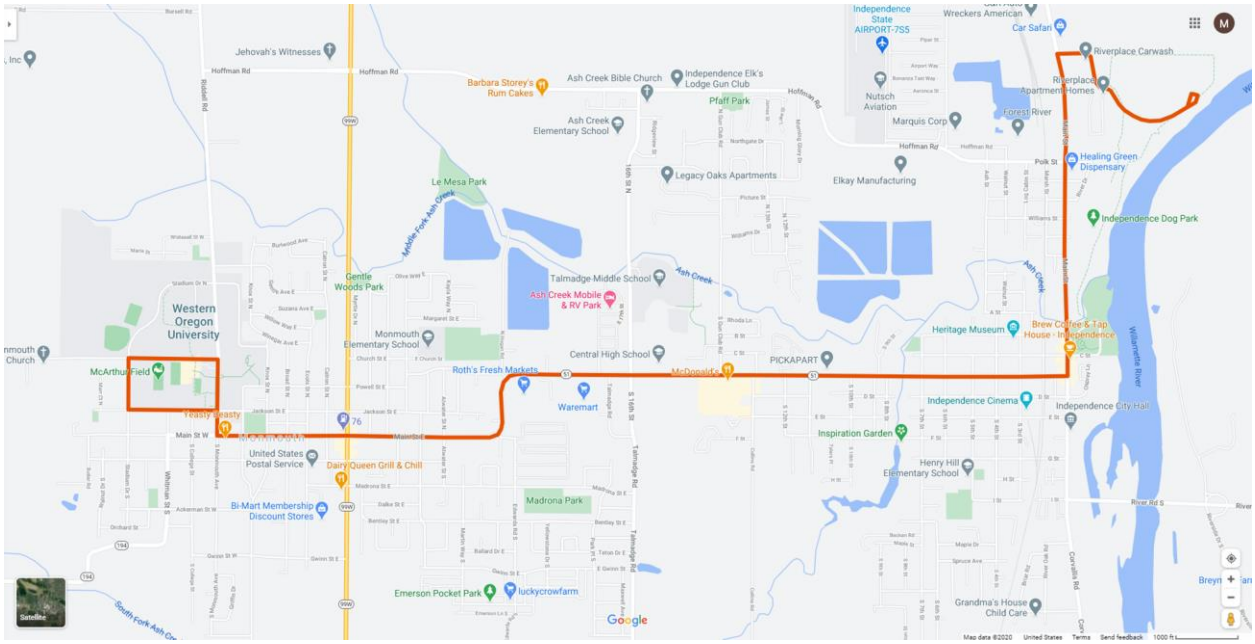
During PAC Meeting #3, Walker facilitated a Trolley Route Planning exercise to gather feedback from the Committee regarding three potential trolley routes (shown in the following figures). The trolley route planning exercise was done through the community engagement platform Mural. Committee participants received a link to the Mural and participated in the exercise live during the meeting. Detailed notes from the trolley route planning exercise done during PAC Meeting #3 are included in Appendix C of this report.

Figure 14: Option A: 3-mile route (2 vehicles = 15-minute service)



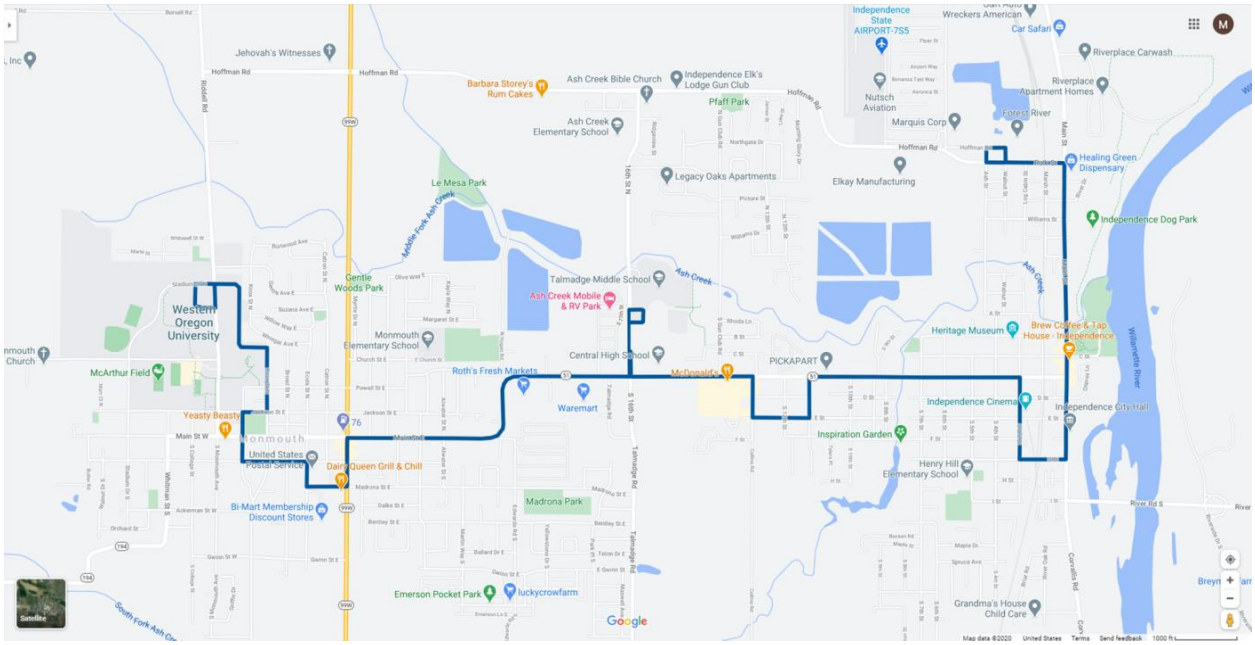
Source: Mural, Google Maps, Walker Consultants, 2020.

Figure 15: Option B: 4.5-mile-route (2 vehicles = 20/25-minute service)



Source: Mural, Google Maps, Walker Consultants, 2020.

Figure 16: Option C: 6-mile Route (2 vehicles = 30-minute Service)



Source: Mural, Google Maps, Walker Consultants, 2020.

Participants were asked the following four questions about the routes:

1. Which of the three routes best serves commuters (people who commute to work regularly)?
2. Which of the three routes best serves students (high school or college)?
3. Which of the three routes best services seniors and/or persons with disabilities?
4. Which of the three routes best promotes economic development?

The key findings include:

- A majority of respondents reported that Option B would best serve commuters (people who commute to work regularly). Option B directly connects downtown Independence and downtown Monmouth. While Route C would provide more direct access to large employers such as Marquis Corp than Option B, Option B has fewer deviations, which would result in a shorter commute time.
- Respondents reported that overall, Option C would best serve students. Option C provides the most direct access to Western Oregon University.
- A majority of respondents reported that Option C would best serve seniors and/or persons with disabilities. Option C provides more direct access to more destinations.
- Respondents reported that both Option A and Option B would best promote economic development. Both Option A and Option B serve downtown Independence and downtown Monmouth.

Respondents were then asked to comment on the routes, in general, as summarized below:

- Respondents overall liked that the Option A is straight and fast and serves the major business corridors: Main Street in Monmouth and Monmouth Street in Independence, which promotes economic development. However, respondents expressed concern that people would have to walk further to a transit stop or from a transit stop to their destination.

- Respondents liked that Option B provides a relatively direct connection between Downtown Independence and Downtown Monmouth, with relatively few deviations.
- Respondents thought Option C was more comprehensive than Option A or B, given that there are more deviations than Option A and B. However, concerns were expressed about the number of deviations on the route, and the resulting slower speed of the trolley. Respondents commented that there would likely be a need for a third or fourth vehicle to make the route viable.
- Respondents commented that Option C connects Western Oregon University better than Option A or B. However, given the right of way available and current traffic patterns, concerns were expressed regarding the ability of the trolley to make the proposed loop within the Western Oregon University campus.

Community Survey

The other significant component of the stakeholder outreach process was the online Community Survey. The survey was issued through the online platform Survey Monkey. The survey was distributed through social media, WOU platforms, and through the City of Independence and Monmouth monthly newsletters to residents. The survey was open for five weeks, between October 15th to November 22nd of 2020, with 981 people responding to the survey and 650 completing the survey and entering the drawing for one of four $25 gift cards that were provided as an incentive. The full survey responses can be found in Appendix D.

The key findings from the survey responses are as follows:

- Most respondents have their driver's license and access to at least one vehicle.
- Common destinations among respondents are as follows:
    - Many respondents go to Salem/Keizer for healthcare/doctor or retail shopping.
    - Monmouth/Independence are the most common destinations for grocery shopping, recreation/exercise, church/charity, work, and school.
    - For restaurants/bars and social/family engagements, Monmouth/Independence, closely followed by Salem/Keizer, are the most common destinations. More than half of respondents drive to the above-referenced destinations.
    - Recreation/exercise and school have the lowest drive rates at 54 percent and 55 percent, respectively.
- The four most common locations that respondents wanted to be served by future transit are Waremart, Monmouth/Independence libraries, Roth's Fresh Market, and Western Oregon University.
- A majority of respondents prefer a fixed route or flex route, with 36 percent of respondents desiring a fixed route and 43 percent preferring a flex route.
- The trolley vehicle is the most popular transit vehicle among survey respondents.
- The majority of respondents are willing to pay at least $0.50 for the service.
- Most respondents think that the service should run every day or Monday through Saturday. A majority of respondents are not willing to wait more than 15 minutes for the service or walk more than 10 minutes to a transit stop.

- The presence of bus shelters, availability of a mobile app, and ability to get arrival information from a mobile app are the factors that had highest ratings among respondents in terms of importance of using the service.
- Respondents indicated that they are more likely to use the transit service once the pandemic is over. However, individuals said that they are willing to use the service if protective measures to improve the safety of riders are used (i.e., wearing face masks and offering hand sanitizer). The average rating reported was 5.9 on a scale between 1-10 in terms of likelihood of riding the service.
- One limitation of the survey is it is heavily skewed toward students. About 50 percent of respondents indicated that they are students and between ages 16-25. Also, over 70 percent of respondents were female, so survey results largely reflect their preferences.

05 Service Feasibility Analysis

Service Feasibility Analysis

This section discusses the feasibility analysis for the transit service, including service planning, routing options, service frequency, service hours, operating cost estimates, cost of operations details, potential service scenarios, and trolley vehicle costs.

Service Planning

When planning a transit service, there are a number of service planning principles that should be considered, to ensure efficient operations of service, maximum level of service and provision of an attractive travel options for most potential users. This requires careful balance of a many trade-offs when designing service. For Monmouth and Independence, there are four key trade-offs to consider for the design of a service route, as follows:

- *Route length and shape* – Long and straight routes typically perform better than short and circuitous routes. Long routes (10 miles or more) can connect a large number of origins and destinations and be more usable for a larger group of people. The straighter they are the faster they can provide these connections. Route 40X is an example of this. In contrast, short routes (less than 5 miles) can access a limited number of origins and destinations and are usable by a reduced number of potential riders. The more circuitous they are the slower they can provide the connections, and the more specialized they become. Short and circuitous routes tend to perform better in high density urban environments, where they can provide a first/last mile connection to frequent mass transit services or provide circulation between many origins and destinations in a dense environment with many land use activities.
- *Frequency versus waiting time* – Most of the able-bodied population prefer to walk for more service frequency. People often perceive waiting time at a transit stop as idle time compared to walking time which is active time traveling toward their destination. If provided with an option to walk a short distance (up to 5 minutes) to a service that only operates every 30 minutes or more, versus walking a longer distance (up to 15 minutes) to a service that operates more frequently than 30 minutes, and especially every 15 minutes or less, most people prefer the service that operates more frequently, because their waiting time will be much less.
- *Travel Time and Deviations* – Most transit riders prefer direct routes rather than routes that have excessive deviations. Riders take into account the entire duration of their trip when planning and deciding their mode of travel, door to door from point A to point B, including walking, waiting and travel time. Deviations are often perceived to be much longer than they really are. In lower density environments, such as suburban areas and small cities, people may prefer to use their personal vehicle to take a shorter more direct route than a transit service that makes a lot of deviations. Routes with a lot of deviations are likely to only attract riders with a lot of time available or that do not have other transportation options. The majority will prefer more direct and frequent routes that are reliable and easier to go from one place of the community to another.
- *One-way Loops versus bi-directional routes* – Another variation of straight versus circuitous are one-way loops versus bi-directional routes. Routes are more usable by potential riders when the route alignment is the same, on the way in and on the way back. Straight bi-directional service routes provide the simplest solution to this. One-way loops can work or provide a comparable service when the loop is small and can provide stops of comparable walking distance on the way in and on the return trip. If riders have to circulate

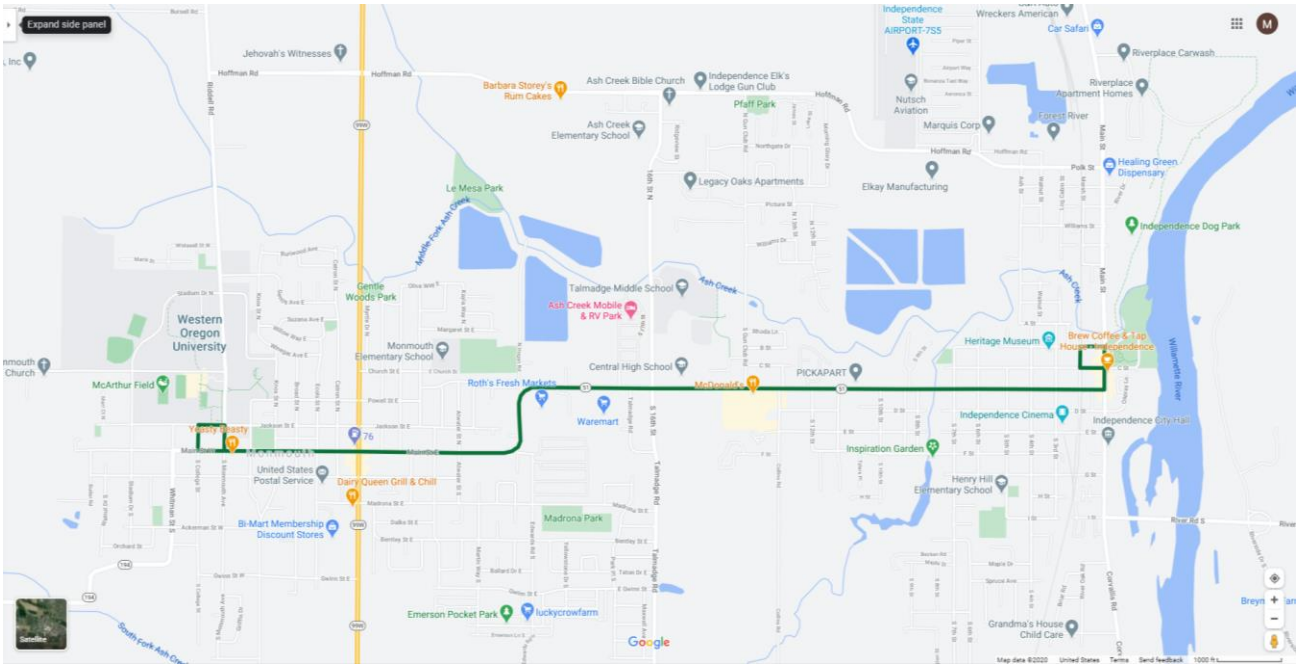
through a large loop before getting back to their stop of origin, they will get a longer trip in both length and time, that would not be direct and perceived as an excessive deviation.

Routing Options

As discussed in the Stakeholder Outreach section of this report, three route concepts were evaluated for the transit service, as shown in the following figures. The purpose of these concepts was to test the advantages and disadvantages of routing strategies considering the trade-offs and principles described above.

Figure 17 shows the Option A route, a three-mile long route, from end to end, that directly connects Independence and Monmouth on Main Street and Monmouth Street. It is anticipated that a roundtrip on this route would take about 30 minutes, therefore two vehicles would be needed to provide a frequency of service every 15 minutes.

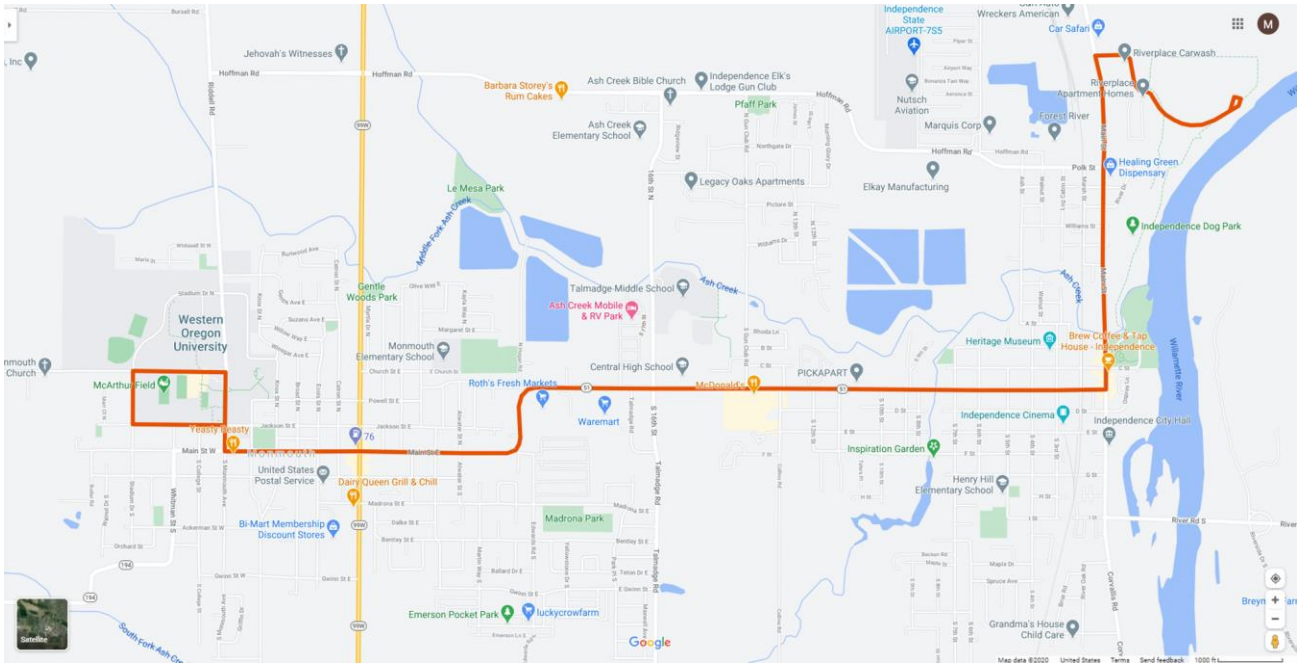
Figure 17: Option A: 3-mile route (2 vehicles = 15-minute service)



Source: Google Maps, Walker Consultants, 2020.

Figure 18 displays Option B, a 4.5-mile long route, from end to end, that provides extended circulation to reach the WOU campus in Monmouth, and the Riverplace Apartment Homes and Riverplace Park and sports complex in Independence. It is anticipated that a roundtrip on this route would take about 45 minutes, therefore two vehicles would provide a frequency of service every 20-25 minutes.

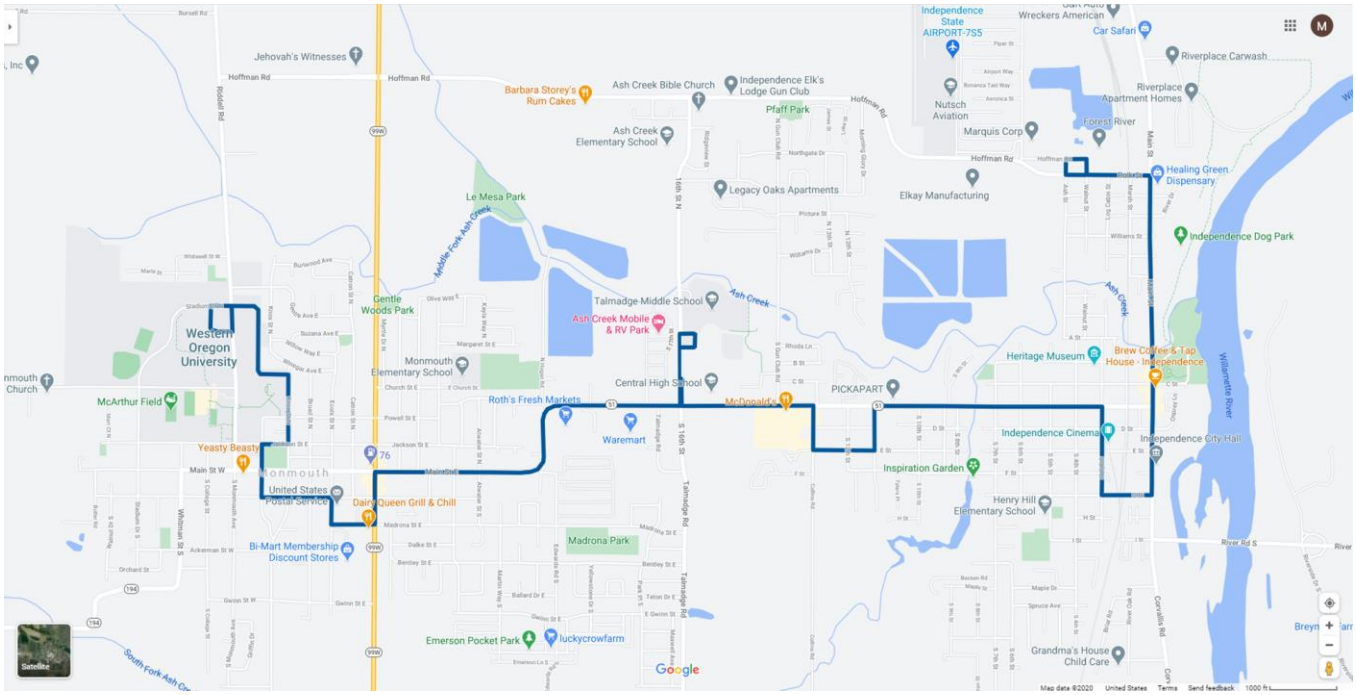
Figure 18: Option B: 4.5-mile-route (2 vehicles = 20/25-minute service)



Source: Google Maps, Walker Consultants, 2020.

Figure 19 displays Option C, a six-mile long route, from end to end, that has a large number of deviations as compared to Options A and B, to circulate through the WOU Campus, downtown Monmouth, the Monmouth Library and U.S. Post Office, Central High School, the Park West Apartments in Independence, Independence City Hall, and the industrial businesses on Hoffman Road near the Independence Airport. It is anticipated that a roundtrip on this route would take 60 minutes. Therefore two vehicles would be required to provide a frequency of service of every 30 minutes.

Figure 19: Option C: 6-mile Route (2 vehicles = 30-minute Service)



Source: Google Maps, Walker Consultants, 2020.

Service Frequency

The routing options or concepts presented to the PAC were thought to illustrate the impact that route length can have on service frequency in a scenario of limited financial resources. Figure 20 summarizes the potential service frequency for Option A (3-mile route), Option B (4.5-mile route), and Option C (6-mile route) based on number of vehicles provided. As shown in the table, with equal number of vehicles in operation, the longer the route the lower the frequency that can be provided. A direct albeit short route that connects downtown Monmouth and Independence, can be offered more frequently with a smaller number of vehicles. The more vehicles that serve the route, the more frequent the service can be. However, adding additional vehicles requires adding more drivers and increases the cost of operating the transit service, as discussed in the following sections.

Figure 20: Number of Vehicles and Service Frequency for Option A, Option B, and Option C

Service Frequency	1 Vehicle	2 Vehicles	3 Vehicles	4 Vehicles
Option A: 3.0-mile route	30 minutes	15 minutes	10 minutes	7-8 minutes
Option B: 4.5-mile route	45 minutes	22-23 minutes	15 minutes	11-12 minutes
Option C: 6.0-mile route	60 minutes	30 minutes	20 minutes	15 minutes

Source: Walker Consultants, 2021.

Service Hours

Figure 21 on page 47 summarizes rough order of magnitude costs for different levels of service, measured as vehicle hours per day and days per year of service. As shown in the table, as the service is provided more days of year, the costs increase and as the number of vehicle hours increase, the costs increase. The following scenarios are included in the figure:

Days of Service per Year

- *100 Days of Service* – i.e., Memorial Day to Labor Day
- *200 Days of Service* – i.e., Thursday through Sunday throughout the year
- *300 Days of Service* – Monday through Saturday throughout the year

Vehicle Hours of Service

Seven potential scenarios were analyzed to illustrate how the cost of operations changes with additional service hours and days of service. They include:

- *12 vehicle hours per day* – one vehicle operates from 7:00 a.m. to 7:00 p.m.
- *15 vehicle hours per day* – one vehicle operates from 7:00 a.m. to 10:00 p.m.
- *18 vehicle hours per day* – one vehicle operates from 7:00 a.m. to 7:00 p.m. and a second vehicle is added to provide additional service in the morning and afternoon from 7:00 a.m. to 10:00 a.m. and from 3:00 p.m. to 6:00 p.m., during traditional rush hour periods.
- *21 vehicle hours per day* – one vehicle operates from 7:00 a.m. to 9:00 p.m. and a second vehicle is added to provide additional service in the morning and afternoon from 7:00 a.m. to 10:00 a.m. and from 3:00 p.m. to 7:00 p.m., on an extended rush hour period.
- *24 vehicle hours per day* – one vehicle operates from 7:00 a.m. to 7:00 p.m. and a second vehicle operates from 8:00 a.m. to 8:00 p.m., to increase span of service hours and provide more frequency in the middle of the day, when demand is higher for non-work related trips.
- *27 vehicle hours per day* – one vehicle operates from 8:00 a.m. to 8:00 p.m. and a second vehicle provides extended hours in the morning and evening 7:00 a.m. to 10:00 p.m., to increase the span of service hours and provide more frequency in the middle of the day, afternoon and evening.
- *30 vehicle hours per day* – two vehicles operate from 7:00 a.m. to 10:00 p.m., to provide consistent frequency throughout the day on an extended span of service hours.

Operating Cost Estimates

Figure 21 shows operating cost estimate projections for 100, 200 and 300 days of operation, for daily service hours ranging from 12 to 30 vehicle hours as described in the previous sections. The table is useful to identify how much service can be afforded, regardless of route option, and to help decide which route may be the best option in a scenario of limited resources.

At $200,000 per year

- 12 hours of service daily | 200 days of service per year (Thu – Sun service all year)
- 18 hours of service daily | 100 days of service per year (Memorial Day to Labor Day service)

At $400,000 per year

- 15 hours of service daily | 300 days of service per year (Mon – Sat service all year)
- 21 hours of service daily | 200 days of service per year (Thu – Sun service all year)

At $600,000 per year

- 21 hours of service daily | 300 days of service per year (Mon – Sat service all year)
- 30 hours of service daily | 200 days of service per year (Thu – Sun service all year)

At $800,000 per year

- 30 hours of service daily | 300 days of service per year (Mon – Sat service all year)

Operating costs estimates and projections in Figure 21 are based on a cost model developed by Walker Consultants (see Cost of Operation Details section below) based on information obtained from private transportation service operators in Oregon and Washington States.

Cost projections do not include the cost of purchase, registration and insurance of electric trolley vehicles. These are assumed to be provided by the Cities through local funds or grant funding from federal and/or state sources to promote adoption of electric vehicle infrastructure.

Figure 21: Hours and Days of Service

Annual Service Hours Hours of Service * Days of Service	Memorial Day to Labor Day (100 days)	Thursday through Sunday (200 days)	Monday through Saturday (300 days)
12 hours per day 1 vehicle (7:00 a.m. – 7:00 p.m.)	$132,000	$240,000	$342,000
15 hours per day 1 vehicle (7:00 a.m. – 10:00 p.m.)	$165,000	$300,000	$427,500
18 hours per day 1 vehicle (7:00 am – 7:00 pm) 1 vehicle (7:00-10:00 a.m. & 3:00-6:00 p.m.)	$198,000	$360,000	$513,000
21 hours per day 1 vehicle (7:00 am – 9:00 pm) 1 vehicle (7:00-10:00 a.m. & 3:00-7:00 p.m.)	$231,000	$420,000	$598,500
24 hours per day 1 vehicle (7:00 a.m. – 7:00 p.m.) 1 vehicle (8:00 a.m. – 8:00 p.m.)	$264,000	$480,000	$684,000
27 hours per day 1 vehicle (7:00 a.m. – 10:00 p.m.) 1 vehicle (8:00 a.m. – 8:00 p.m.)	$297,000	$540,000	$769,500
30 hours per day 1 vehicle (7:00 am – 10:00 pm) 1 vehicle (7:00 am – 10:00 pm)	$330,000	$600,000	$855,000

Source: Walker Consultants, 2021.

Note: Cost projections presented in Figure 21 are a rough order of magnitude and are offered for guidance only. Walker Consultants developed a cost model that among other factors assumes that the average cost per vehicle service hour will increase with a decrease in days and hours of operation. This is because, the fixed costs of providing service are generally the same for operating the full year or a portion of the year. When the service operates for longer hours and more days of the year, the fixed costs and overhead can be spread over a higher number of service hours and miles, making the average rate per vehicle hour lower. The average rate per vehicle service hour used for each scenario was $110 for 100 days of operation, $100 for 200 days of operation, and $95 for 300 days of operation per year.

Cost of Operation Details

Walker Consultants developed an estimate for the annual cost of operating the service with electric trolley vehicles, assuming service availability from Monday to Saturday, year round or 300 days of service, and 30 hours of revenue service each day, or the equivalent of having two trolley vehicles operate 15 hours of service from 7:00 a.m. to 10:00 p.m. Figure 22 provides a summary of the resulting cost estimate, which amounts to roughly $860,000 per year and an average cost of approximately $90.00 per vehicle hour (including deadhead) or $96.00 per vehicle revenue service hour (not including deadhead).

Figure 22: Annual Cost of Operation of Electric Trolley Vehicle Service, Over a Period of 300 Days

DIRECT COSTS SUMMARY	Item Cost
VEHICLE COSTS	
Vehicle Purchasing/Leasing	$ -
Vehicle Insurance & Registration	$ -
Vehicle Branding	$ -
Subtotal	**$ -**

VEHICLE OPERATIONS & MAINTENANCE	
Fuel & Oil	$ 23,888.13
Proactive maintenance, service and repairs, and tires	$ 4,294.50
Washing, cleaning and other expenses	$ 9,000.00
Subtotal	**$ 37,182.63**

DRIVERS	
Driver's Salary & Benefits & Payroll Taxes	**$ 324,576.00**

TECHNOLOGY	
Annual Technology Service Fees (vehicle tracking mobile apps)	$ 7,200.00
Dispatch and Radio Communications (amortized over 3 years)	$ 900.00
GPS/AVL and APC hardware (amortized over 3 years)	$ 3,000.00
Subtotal	**$ 11,100.00**

TOTAL DIRECT EXPENSES	**$ 372,858.63**
Overhead (depot, admin, management, dispatch, mechanics)	$ 410,144.49
Fee/Profit	$ 78,300.31
TOTAL ANNUAL COST OF OPERATIONS	**$ 861,303.44**

Source: Walker Consultants, 2021.

Notes: *The annual cost of operation estimate assumes that the electric trolley vehicles will be purchased and owned by the cities of Monmouth and Independence. It assumes that operation of the service and maintenance of the trolley vehicles will be contracted out to a private service provider such as MV Transportation, through a direct contract with the two cities or a contract with Cherriots.*

A private contractor like MV Transportation will include in its cost estimate the marginal cost of operating the service as specified above, plus the cost of overhead (to account for the lease of space for admin office, garage for storage and repair of vehicles, and admin, management, operations, dispatch and mechanic staff), plus service fee or profit. Overhead rate and service fee have been estimated at 110% and 10%, respectively, assuming a lean operation and standard profit rate. A private contractor like MV Transportation will operate the service with professional drivers that are CDL certified and unionized, and compensated according to prevalent industry market rates, estimated to be no less than $23.00 per hour plus benefits.

Figure 23 provides a cost-efficiency analysis of the electric trolley vehicle service, based on target performance indicators. A community connector service like the one the cities want to implement may be able to perform at an average of 15 passengers per revenue service hour. Generally, this is the minimum performance level for a transit service that operates extended hours during the day and throughout the year. Anything above 15 passengers per hour could be considered a success for a service in the context of Monmouth and Independence.

Anything below 15 passengers per hour would only use a fraction of the trolley vehicles seats and cost over $5.00 per passenger to provide the service. An average performance of 15 passengers per hour would also yield an average of 450 passengers per day (over 30 hours of daily revenue service), which amounts to about 2% of the population of Monmouth and Independence using transit on a regular basis, which seems a reasonable assumption, when compared to the ridership and performance of existing Cherriots Regional services (Route 40X captures about 200 boardings daily on the stops within Monmouth and Independence). Finally, if the service charged a fare of $0.50 per one-way trip or $1.00 roundtrip, a fare that most community survey respondents are willing to pay, the service would only recoup about 8.36% of its cost at the farebox.

Figure 23: Electric Trolley Vehicle Service, Cost Efficiency Summary

SERVICE COST-EFFICIENCY SUMMARY	Item Cost
COST PER VEHICLE HOUR & MILE	
Estimated Annual Cost	$ 861,303.44
Annual Cost per Vehicle	$ 287,101.15
Monthly Cost for Service	$ 71,775.29
Cost per Vehicle per Month	$ 23,925.10
Cost per Day	$ 2,871.01
Vehicle Hours per Day (revenue + deadhead)	32.00
Cost per Vehicle Hour	**$ 89.72**

COST-EFFICIENCY INDICATORS	
Passengers per Revenue Service Hour	15.00
Daily Passengers	450.00
Cost per Passenger	**$ 6.38**
Seats per Revenue Service Hour	120.00
Average Seat Occupancy	12.50%
Average Fare per One-Way Trip	$ 0.50
Fare Revenue per Hour	7.50
Farebox Recovery Ratio	**8.36%**

Source: Walker Consultants, 2021.

The service cost-efficiency summary shows that under an average ridership performance level of 15 passengers per hour of revenue service, the service will be very expensive to provide and recoup a very small fraction of its cost at the farebox. However, there are options to implement the service more cheaply with operation of smaller electric vehicles that are cheaper to purchase, own and maintain, with utilization of non-CDL certified drivers at a lower pay rate, and by bringing the admin and management of the system in-house, to share existing facilities and resources, and reduce the overhead rate.

For comparison, Walker Consultants developed an estimate for the annual cost of operating the service with smaller electric vehicles, assuming service availability from Monday to Saturday, year round or 300 days of service, and 30 hours of revenue service each day, or the equivalent of having four Ford E-Transit vehicles operating 7.5 hours of service each (each vehicle can travel for up to 120 miles on a single charge and would last for about 7.5 hours of continuous service) from 7:00 a.m. to 10:00 p.m. Figure 24 provides a summary of the resulting cost estimate, which amounts to roughly $460,000 per year and an average cost of approximately $43.00 per vehicle hour (including deadhead) or $51.00 per vehicle **revenue service hour** (not including deadhead).

Figure 24: Annual Cost of Operation of Small Electric Vehicle Service, Over a Period of 300 Days

DIRECT COSTS SUMMARY	Item Cost
VEHICLE COSTS	
Vehicle Purchasing/Leasing	$ -
Vehicle Insurance & Registration	$ -
Vehicle Branding	$ -
Subtotal	**$ -**

VEHICLE OPERATIONS & MAINTENANCE	
Fuel & Oil	$ 7,139.73
Proactive maintenance, service and repairs, and tires	$ 4,378.50
Washing, cleaning and other expenses	$ 21,000.00
Subtotal	**$ 32,518.23**

DRIVERS	
Driver's Salary & Benefits & Payroll Taxes	**$ 204,120.00**

TECHNOLOGY	
Annual Technology Service Fees (vehicle tracking mobile apps)	$ 16,800.00
Dispatch and Radio Communications (amortized over 3 years)	$ 2,100.00
GPS/AVL and APC hardware (amortized over 3 years)	$ 7,000.00
Subtotal	**$ 25,900.00**

TOTAL DIRECT EXPENSES	**$ 262,538.23**
Overhead	$ 157,522.94
Fee/Profit	$ 42,006.12
TOTAL ANNUAL COST OF OPERATIONS	**$ 462,067.29**

Source: Walker Consultants, 2021.

Notes: *The annual cost of operation estimate assumes that the small electric vehicles will be purchased and owned by the cities of Monmouth and Independence. It also assumes that service will be operated and maintained by the two cities and/or WOU. The overhead rate and service fee have been estimated at 60% and 10%, respectively, assuming a much leaner overhead cost, from sharing facilities and resources, and standard profit rate. The driver rates are estimated at $15.00 per hour plus benefits.*

Figure 25 provides a cost-efficiency analysis of the small electric vehicle service, based on the same 15 passengers per hour performance indicator target. The cost per vehicle hour is significantly lower than for the electric trolley (approximately $42.78 versus $89.72). therefore, at the same number of daily passengers as the electric trolley (450), the cost per passenger is lower (approximately $3.42 versus $6.38). At this lower cost per passenger, if the service charged a fare of $0.50 per one-way trip or $1.00 roundtrip, a fare that most community survey respondents are willing to pay, the service would recoup about 17.53% of its cost at the farebox.

Figure 25: Smaller Vehicle Service, Cost Efficiency Summary

SERVICE COST-EFFICIENCY SUMMARY	Item Cost
COST PER VEHICLE HOUR & MILE	
Estimated Annual Cost	$ 462,067.29
Annual Cost per Vehicle	$ 66,009.61
Monthly Cost for Service	$ 38,505.61
Cost per Vehicle per Month	$ 5,500.80
Cost per Day	$ 1,540.22
Vehicle Hours per Day (revenue + deadhead)	36.00
Cost per Vehicle Hour	**$ 42.78**

COST-EFFICIENCY INDICATORS	
Passengers per Revenue Service Hour	15.00
Daily Passengers	450.00
Cost per Passenger	**$ 3.42**
Seats per Revenue Service Hour	60.00
Average Seat Occupancy	25.00%
Average Fare per One-Way Trip	$ 0.50
Fare Revenue per Hour	7.50
Farebox Recovery Ratio	**17.53%**

Source: Walker Consultants, 2021.

Potential Service Scenarios

Figure 26 to

Figure 29 provide a summary of potential service scenarios for each route concept using the trolley vehicle, based on different levels of funding or cost of operation per year.

These figures were developed to illustrate a range of options for implementation and service growth, based on pre-determined levels of funding or operating cost budgets for the service, including $200,000, $400,000, $600,000 and $800,000 for a year of service.

The range of options include implementation of any of the three route concepts – A, B and C, at various levels of service, from 12 to 60 hours of service representing a single vehicle operating 12 hours per day to four vehicles operating 15 hours per day, and for service operations of 100, 200 and 300 days per year.

Under each level of funding and service scenario, the options that provide a minimum frequency of service of 15 minutes at least during rush hour periods or better are highlighted (in grey in the figures below).

- The exercise shows that even at the $200,000 operating cost level, there are services that can be implemented on the shortest route, Option A, for the shortest period of time, 100 days, as a pilot or demonstration of service concept.
- At the $400,000 operating cost level, service can be implemented on route options A and B for a period of 200 and 100 days respectively, and for extended hours in the day.
- At the $600,000 operating cost level, service can be implemented on route options A and B for extended periods of time of up to 300 days in the year, and/or for extended hours of service in the day, potentially from 7:00 a.m. to 10:00 p.m.
- At the $800,000 operating cost level, Option A can be operated for 300 days in the year and extended hours in the day at a consistent 15-minute frequency, while Option C can be operated for 125 days in the year at the same frequency and hours of day.

Figure 26: Level of Service Options at $200,000 per Year

$200,000 per year	Service Scenario 1 12 hours of service 7 a.m. – 7 p.m. 200 days of service Thu – Sun all year 1 vehicle	Service Scenario 2 18 hours of service daily 7 a.m. – 7 p.m. 100 days of service Memorial Day to Labor Day 2 vehicles Peak hour service 7 – 10 a.m. & 3 – 6 p.m.	Service Scenario 3 21 hours of service daily 7 a.m. – 9 p.m. 90 days of service Memorial Day to Labor Day 2 vehicles Peak hour service 7 – 10 a.m. & 3 – 7 p.m.
Route A: 3.0-mile route	Every 30 minutes	**Every 15 minutes | peak** **Every 30 minutes | off-peak**	**Every 15 minutes | peak** **Every 30 minutes | off-peak**
Route B: 4.5-mile route	Every 45 minutes	Every 22-23 minutes | peak Every 45 minutes | off-peak	Every 22-23 minutes | peak Every 45 minutes | off-peak
Route C: 6.0-mile route	Every 60 minutes	Every 30 minutes | peak Every 60 minutes | off-peak	Every 30 minutes | peak Every 60 minutes | off-peak

Source: Walker Consultants, 2021.

Figure 27: Level of Service Options at $400,000 per Year

$400,000 per year	Service Scenario 1 15 hours of service 7 a.m. – 10 p.m. 300 days of service Mon - Sat all year 1 vehicle	Service Scenario 2 21 hours of service daily 7 a.m. – 9 p.m. 200 days of service Thu - Sun all year 2 vehicles Peak hour service 7 – 10 a.m. & 3 – 7 p.m.	Service Scenario 3 36 hours of service daily 7 a.m. – 10 p.m. 100 days of service Memorial Day to Labor Day 3 vehicles Peak hour service 7 – 10 a.m. & 4 – 7 p.m.
Route A: 3.0-mile route	Every 30 minutes	**Every 15 minutes | peak** **Every 30 minutes | off-peak**	**Every 10 minutes | peak** **Every 15 minutes | off-peak**
Route B: 4.5-mile route	Every 45 minutes	Every 22-23 minutes | peak Every 45 minutes | off-peak	**Every 15 minutes | peak** **Every 22-23 minutes | off-peak**
Route C: 6.0-mile route	Every 60 minutes	Every 30 minutes | peak Every 60 minutes | off-peak	Every 20 minutes | peak Every 30 minutes | off-peak

Source: Walker Consultants, 2021.

Figure 28: Level of Service Options at $600,000 per Year

$600,000 per year	Service Scenario 1 21 hours of service 7 a.m. – 9 p.m. 300 days of service Mon - Sat all year 2 vehicles Peak hour service 7 – 10 a.m. & 3 – 7 p.m.	Service Scenario 2 30 hours of service daily 7 a.m. – 10 p.m. 200 days of service Thu - Sun all year 2 vehicles	Service Scenario 3 45 hours of service daily 7 a.m. – 10 p.m. 125 days of service May 15 to Sep 15 3 vehicles
Route A: 3.0-mile route	**Every 15 minutes | peak** **Every 30 minutes | off-peak**	**Every 15 minutes**	**Every 10 minutes**
Route B: 4.5-mile route	Every 22-23 minutes | peak Every 45 minutes | off-peak	Every 22-23 minutes	**Every 15 minutes**
Route C: 6.0-mile route	Every 30 minutes | peak Every 60 minutes | off-peak	Every 30 minutes	Every 20 minutes

Source: Walker Consultants

Figure 29: Level of Service Options at $800,000 per Year

$800,000 per year	Service Scenario 1 30 hours of service 7 a.m. – 10 p.m. 300 days of service Mon - Sat all year 2 vehicles	Service Scenario 2 42 hours of service daily 7 a.m. – 10 p.m. 200 days of service Thu - Sun all year 3 vehicles Peak hour service 8 a.m. – 8 p.m.	Service Scenario 3 60 hours of service daily 7 a.m. – 10 p.m. 125 days of service May 15 to Sep 15 4 vehicles
Route A: 3.0-mile route	Every 15 minutes	Every 10 minutes | peak Every 15 minutes | off-peak	Every 7-8 minutes
Route B: 4.5-mile route	Every 22-23 minutes	Every 15 minutes | peak Every 22-23 minutes | off-peak	Every 11-12 minutes
Route C: 6.0-mile route	Every 30 minutes	Every 20 minutes | peak Every 30 minutes | off-peak	Every 15 minutes

Source: Walker Consultants

Trolley Vehicle Costs

The transit vehicle is one of the major capital costs associated with a new transit service. As discussed in previous sections, the trolley vehicle was selected as the preferred transit vehicle by the PAC. This section describes the rough order or magnitude costs for a trolley vehicle. Trolley vehicles are typically 30-40 feet long and seat 25 to 35 people. Figure 30 summarizes rough order of magnitude cost estimates for trolley vehicles.

Figure 30: Rough Order of Magnitude Trolley Vehicle Costs

Fuel Type	ROM Cost for New Trolley	ROM Cost for Used Trolley
Diesel	$400,000	$50,000-$60,000
CNG	$600,000	$50,000-$60,000
Full Electric	$1,000,000	N/A

Source: Walker Consultants, 2020.

Fueling Infrastructure

Fueling infrastructure needs vary depending on the fuel type of the trolley vehicle. For diesel vehicles, fueling infrastructure would not need to be updated, as diesel fuel stations are already available throughout the study area. CNG fueling stations are not available within Monmouth and Independence but available in the region at the ODOT facility on Airport Road in Salem and at the Cherriots Depot on Del Webb Avenue in Salem. Cherriots recently bought CNG buses for its fleet and installed a CNG fueling station at its base.

Electric trolleys would require new charging infrastructure. One option for charging includes installing Level 3 chargers, typically found at public charging stations. A typical Level 3 charger costs approximately $70,000 to purchase and install and includes two charging nozzles. This cost does not include electric infrastructure such as new transformers or circuits that may be required, depending on building age, location and electric network. Level 3 chargers are for commercial and industrial use and could be located at a depot to charge trolley vehicles overnight.

Electric Trolley Range

With electric trolley charging, it is important to consider the number of miles that the vehicle could travel before requiring additional charging. To illustrate the potential range that could be expected for the proposed trolley, the total mileage that would be covered by one trolley vehicle covering the shortest route – Option A: the 3-mile long route, operating every 15 minutes for 15 hours per day is as follows:

*4 one-way trips per hour * 3 miles per trip * 15 hours of service = 180 service miles per vehicle*

Based on recent conversations with Texas A&M University and Fresno County Rural Transit Agency, a 40-foot electric bus can typically travel for no more than 100 miles on a full charge. Therefore, 180 miles exceed the range that the vehicle could operate on a full charge. Unless the service is offered at a lower frequency or for fewer hours in the day, rapid charging would be required mid-route to maintain service operations, or additional replacement vehicles would need to be added to the service to swap during the day while spent vehicles are charging.

Rapid charging infrastructure, similar to the Monterey Salinas Transit infrastructure (discussed in the Benchmarking Analysis section of this report) would cost approximately $1 million to install. Therefore, the total capital cost required for two 40-foot electric trolley vehicles plus rapid charging infrastructure would be about $3 million. That level of funding for the purchase of two 40-foot electric trolleys would require a special grant from the state or federal government.

While the trolley vehicle is the preferred alternative based on feedback from the PAC, an alternative to the electric trolley is to buy several smaller vehicles at a cheaper price. One option is the Ford 2022 E-Transit, which can get up to 120 miles of range, it is considerably cheaper than an electric trolley at $50,000-$70,000 per vehicle including all the passenger transportation outfitting options. The cities of Monmouth and Independence could buy four Ford 2022 E-Transit vehicles to provide the same service frequency. Drivers would swap vehicles once they run out of battery, in the middle of the day, to be able to provide up to 180 miles of service. Five Ford 2022 E-Transit vehicles could be purchased (including one spare vehicle) for approximately $300,000, for a fraction of the cost of one electric trolley vehicle.

In order to charge the vehicles during the day, the cities would have two options:

- Installing four Level 2 charging stations at a cost of $7,000 - $10,000 each, including installation and equipment, or about $40,000 total. Level 2 charging stations run on 240v hookups and typically charge an electrical vehicle in 4 to 8 hours. Ford E-Transit vehicles could be recharged overnight.
- Installing two Level 3 charging stations at a cost of $50,000 - $70,000 each, including installation and equipment, or about $100,000 - $140,000 total. Level 3 EV charging stations refer to DC Fast Charging, which offer the fastest charging speeds. They require the local utility company (the city in this case) installing a transformer and can recharge an electric vehicle in about 1 hour.

Therefore, the total capital cost required to purchase and charge the alternative vehicles would range between $350,000 if using Level 2 chargers and $450,000 if using Level 3 chargers. This level of funding is perhaps more affordable and easier to get than $3 million.

Funding Options

Walker reviewed potential federal, state, and local funding sources for the transit service. The following are the key observations from Walker's research:

- Federal: Capital and operations funding is available, but it is very competitive. For the federal sources, application through Oregon Department of Transportation (ODOT) is required. The federal funding requires a local match.
- State: There is likely an opportunity for capital and operations funding through the Statewide Transportation Improvement Fund (STIF). Formula funds are allocated based on local wages (payroll tax), and the funds are competitive discretionary funds.
- Local: Local sources include potential new sources of funding that can be difficult to enact. Examples of local funding sources include farebox revenue, advertising revenue on transit vehicles/stops, the fees from a scooter/bike share permit program, property tax assessments, payroll tax, and utility tax.

Figure 31 on the following page includes a matrix of potential funding sources for the transit service. A more detailed description of each funding type can be found in Appendix E.

Figure 31: Potential Transit Service State and Federal Funding Sources

Funding Source	Potential Funding Amount	Estimated Year Available	Operations or Capital	Path to Funding	Estimated Potential
Statewide Transportation Improvement Fund: Discretionary *Competitive, can be used for a pilot*	Total: $9.5M 37 Grants awarded between $16K and $850K	Due: Fall/Winter 2022 Award: FY 2023	Capital and/or Operations Pilot projects	• Need a Qualified Entity for fund distribution: Mass transit district, transportation district, city, county, tribe • May contract with non-profit or other entity to operate service • Must create a STIF Plan	Medium to High
State Transportation Improvement Fund: Intercommunity Discretionary *Purpose is to improve connections between providers and fill gaps*	Total: $7.6M 17 Grants awarded between $30K and $1.2M	Due: Fall/Winter 2022 Award: FY2023	Capital and/or Operations Long distance, commuter trips	• Need a Qualified Entity for fund distribution: Mass transit district, transportation district, city, county, tribe • May contract with non-profits or other entities to complete project deliverables • Must create a STIF Plan	Low
State Transportation Improvement Fund: Formula *Formula, based on local wages*	Min annual amount is $100K Out of district Polk County generates approx. $500K	Due: Fall/Winter 2022 Award: FY2023	Capital and/or Operations (can be used to create, maintain, expand, or improve service)	• Need a Qualified Entity for fund distribution: Mass transit district, transportation district, city, county, tribe • May contract with non-profit or other entity to operate service • Must create a STIF Plan	Medium to High
FTA Section 5311(f)	Total: $1.9M	Due: Fall/Winter 2022 Award: FY2022	Long distance, commuter trips 50% local match	• Need a Qualified Entity for fund distribution: Mass transit district, transportation district, city, county, tribe	Low

Source: Walker Consultants, 2020.

06 Implementation Strategy

Implementation Strategy

Recommended Approach

Route Selection

As discussed in the Stakeholder Outreach section of this approach, and as discussed with the PAC, there are benefits to each of the three proposed route options (Option A, B, and C). Option A is the most direct route; and therefore, can provide the greatest frequency. Option B is also relatively direct, while making deviations to key locations. PAC members pointed out that of the three options, Option A and Option B would best promote economic development. Option C serves the largest portion of Monmouth and Independence, but includes several deviations that slow down the route.

Of the three route options, Walker recommends starting service with Option A. Option A is aligned with many of the service planning principles discussed earlier in the report. Option A is the straightest of the three routes, which tend to perform better than circuitous routes. Option A provides the connection between Monmouth and Independence. Since Option A is a shorter route, the service can be provided with more frequency at a lower cost than the other two route options. Even though there would be fewer stops, most of the able-bodied population prefer to walk for more service frequency. Most transit riders prefer direct routes rather than routes that have excessive deviations. Routes are more usable by potential riders when the route alignment is the same, on the way in and on the way back, which is the case for Option A.

Service Frequency

Walker recommends that the service operate no less frequent than every 15 minutes between 9:00 a.m. and 7:00 p.m. A high frequency route was recommended by the PAC and through the community survey. Having a frequent service during these hours of the day would promote economic development by providing access to businesses when they are open.

Service Vehicle

Consistent with the recommendations from the community survey and feedback from the PAC, Walker recommends that an electric trolley vehicle is pursued for the service. It is assumed that the two cities would purchase or lease the trolley vehicles through capital grant funding, as discussed in the following section.

Pilot Program

Walker recommends the proposed transit service is tested through a pilot trial period for a period of six months from mid-June to mid-December. This time period would include demand from tourists, visitors, and locals over the summer as well as from students and faculty during the fall semester of Western Oregon University. During the six-month period, the service should be evaluated for ridership, service usability, and the extent to which the service is meeting community goals.

Walker recommends allocating $400,000 for the pilot program, which would afford:

- 24 hours of service per day for 150 days (Monday through Saturday):
- 1 vehicle operating from 7:00 a.m. to 7:00 p.m.
- 1 vehicle operating from 9:00 a.m. to 9:00 p.m.
- 15-minute frequency between 9:00 a.m. to 7:00 p.m.
- 30-minute frequency between 7:00 a.m. and 9:00 a.m. and 7:00 p.m. and 9:00 p.m.

Operations and Maintenance

Given its capital cost, the trolley vehicles would be procured and owned by the cities, however operations and maintenance can be outsourced to a private service provider. Walker recommends that the cities of Independence and Monmouth work with Cherriots to hire a private contractor such as MV Transportation to operate the service. A private contractor will include in its cost estimate the marginal cost of operating the service, plus the cost of overhead (to account for the lease of space for admin office, garage for storage and repair of vehicles, and admin, management, operations, dispatch and mechanic staff), plus service fee or profit. It is estimated that the overhead rate and service fee would be 110% and 10%, respectively, assuming a lean operation and standard profit rate, and assuming that the service provider maintains the vehicles and manages drivers and operation of the service. A private contractor like MV Transportation will operate the service with professional drivers that are CDL certified and unionized, and compensated according to prevalent industry market rates, which we are estimated to be no less than $23.00 per hour plus benefits.

Maintenance of the vehicles could also be done by Cherriots. If done by Cherriots, there could be an opportunity to reduce costs, though this would require further study and evaluation.

Funding

For Polk County, outside of the Salem Area Mass Transit District, the State Transportation Improvement Fund generates $550,000 per year based on current payroll tax, which is allocated to Cherriots. However, it is assumed that Cherriots needs all of this funding to operate their existing transit services in Polk County. To receive a portion of the $550,000 allocated to Polk County, the City would need to form a separate transportation or mass transit district or other qualified entity that provides public transportation. This process would be time consuming, uncertain and would result in a lower amount of funds available for Cherriots services.

To fund this pilot period of transit service operation, Walker recommends that the City pursue the State Transportation Improvement Fund, Discretionary Fund. This fund is a competitive fund that can be used to fund a pilot program. A qualified entity or public transportation service provider is required to apply for the State Transportation Discretionary Fund. Walker recommends that the City work with Cherriots (a qualified entity/public transportation service provider) to apply for this funding.

The capital costs needed for vehicles would be separate from the operational costs. It is recommended that grants are pursued for the capital costs. For example, Monterey Salinas Transit was awarded $1.7 million in a Clean Fuels Grant from the Federal Transit Administration (FTA) to upgrade one of their trolley vehicles to electric and the associated infrastructure to charge the vehicle wirelessly. Because grant funding is uncertain and competitive, and it most likely must be administered through a qualified entity, if it is not possible to receive the $3 million in grants,

Walker recommends that smaller electric vehicles, such as the Ford 2022 E-Transit, be considered (as described further below).

Walker recommends the service is tested for a six-month pilot period to evaluate performance and to make adjustments, as needed. If the service is to be continued in the long-term, investment should be made in stops for the trolley route, including transit stops, shelters, road improvements to support stops, and pedestrian connections. These improvements will be important to improve the access and functionality of this and any transit service in Monmouth and Independence.

A long-term financial solution will be needed for the service, which could include one or more of the following sources. A more detailed description of potential funding sources can be found in Appendix E.

- An increase in the amount of payroll tax that would result in more funds available for Polk County through the STIF program
- Utility Tax – a tax on utility consumptions
- Advertising from local/state/national businesses on or in transit vehicles
- Operator fees from a scooter/bike share program
- Local property tax assessments
- Contributions from local cities
- Contributions from local businesses or institutions
- Other state or federal grants
- Charging users to ride the transit service

Alternative Approach

If the City is not able to receive grant funding for two electric trolley vehicles, the transit service could alternatively be provided with smaller electric vehicles, such as the Ford E-Transit or a similar vehicle. To operate the vehicles, the cities could hire non-CDL drivers in-house or partner with Western Oregon University to find student drivers. The vehicles would be owned, operated, and maintained by the cities and WOU. The cost needed for the six-month pilot program would be $250,000 for the same level of service:

- 24 hours of service per day for 150 days (Monday through Saturday):
- 1 vehicle operating from 7:00 a.m. to 7:00 p.m.
- 1 vehicle operating from 9:00 a.m. to 9:00 p.m.
- 15-minute frequency between 9:00 a.m. to 7:00 p.m.
- 30-minute frequency between 7:00 a.m. and 9:00 a.m. and 7:00 p.m. and 9:00 p.m.

The two cities could partner with Cherriots to apply for the grant funding and coordinating the service with Route 40X and Route 45.

Overlap with Existing Service

However, to best serve the communities of Independence and Monmouth, Walker recommends that the transit service network in Independence and Monmouth is evaluated (including Route 40X, Route 45, and the proposed trolley service) to reduce complexity and overlap. Walker has the following recommendations about the transit service network:

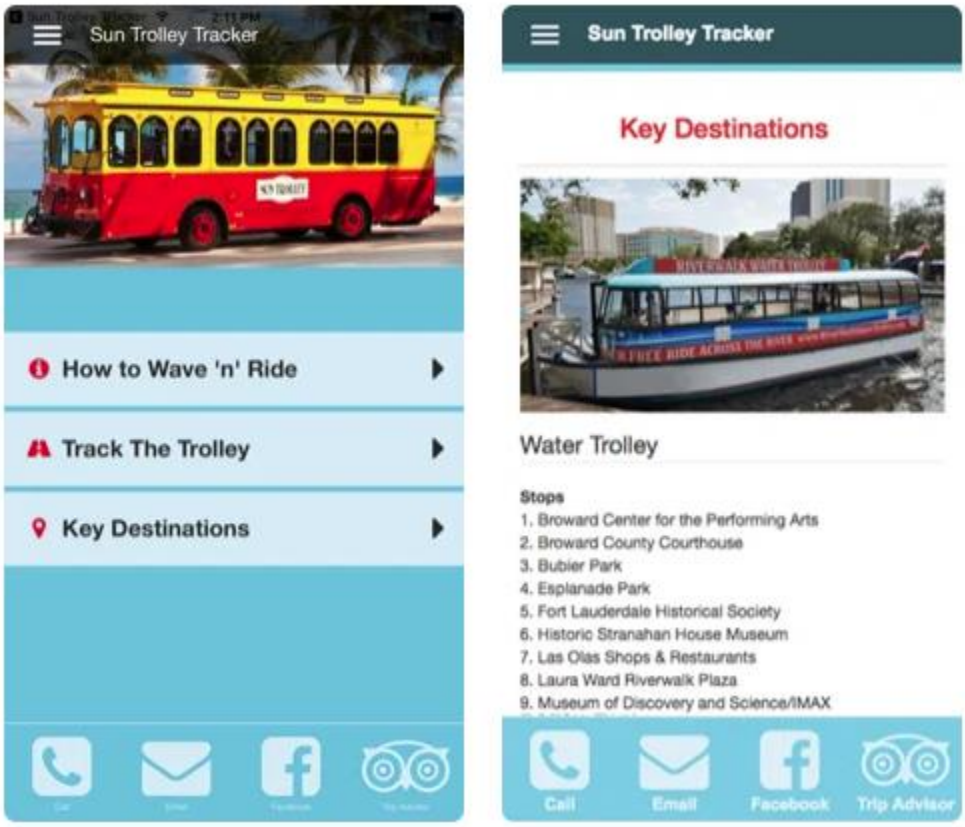
- Route 40X provides an important regional route, connecting Monmouth, Independence, Salem, and Dallas. However, during the weekday, the service only runs in 60, 90 and 180-minute intervals and over the weekend it runs only four times in each direction. The long-term goal for this service should be to operate at least every hour to better serve the communities.
- Route 45 provides an additional transit connection between Dallas, Monmouth, and Independence. However, the service only operates every two hours and takes approximately one hour to take the trip from Independence to Dallas.
- The proposed trolley service would provide a more frequent and direct connection between Independence and Monmouth. Therefore, if the results of the pilot program are successful, the proposed trolley service connecting Independence and Monmouth should replace Route 45. Route 40X would still be available to connect Monmouth and Independence with Dallas.
- The cost savings from the removal of Route 45 service should be used provide to paratransit service for the community. Route 45 service is currently provided with one transit vehicle that is ADA accessible. It is anticipated that the vehicle that serves Route 45 can be used for the paratransit service.
- The provision of complementary paratransit service will provide more freedom and flexibility to Cherriots and the Cities of Monmouth and Independence to operate the trolley service and Route 40X service in a complementary fashion, with the trolley service filling in between Route 40X trips to provide community connection service.
- In the long-term, Cherriots and the cities should pursue additional funding to augment service on Route 40X, which provides important regional connections, and provide service trips to/from Salem every hour.

Transit Service Name, Branding, and Technology

It is important to establish a project name and brand for the trolley service to promote a sense of identity for the service. For example, the King Street Trolley in Alexandria, Virginia has a recognizable brand and name. The trolley service name is reflective of the local area and the trolley vehicle design is attractive and individual to the community (see image below). Having a name and brand for the transit service is important for residents, visitors and employees to recognize the transit service and promote economic development.

Source: visitalexandria.com

In conjunction with service naming and branding, it is important to offer a transit app to allow people to access and use the service more easily. The app should provide real-time arrival and departure information and allow users to receive notification on trolley vehicle status. For example, the Sun Trolley in Fort Lauderdale has the Sun Trolley Tracker App, which allows users to track the trolleys in real-time. The app uses GPS to follow the real-time location of the trolley vehicles. The following image shows the display of the Sun Trolley Tracker app. The app also provides the stops with key destinations.



Source: apps.apple.com

Next Steps

To move toward implementation of the transit service, Walker recommends that additional study work is completed to prepare for the STIF Discretionary Grant application. Additional planning will be needed to plan the specific route, stop locations, fares and fare collection, operations structure, paratransit service (if required), bus facility and maintenance, and costs. This additional work will be necessary to apply for the STIF Grant.

In conjunction with this analysis, the grant application identifies the following areas of focus for the application to be competitive:

- Equity and public transportation service to low-income households
- Coordination of public transportation services
- Safety, security, and community livability
- Environmental and public health
- Statewide transportation network connections
- Sustainable funding

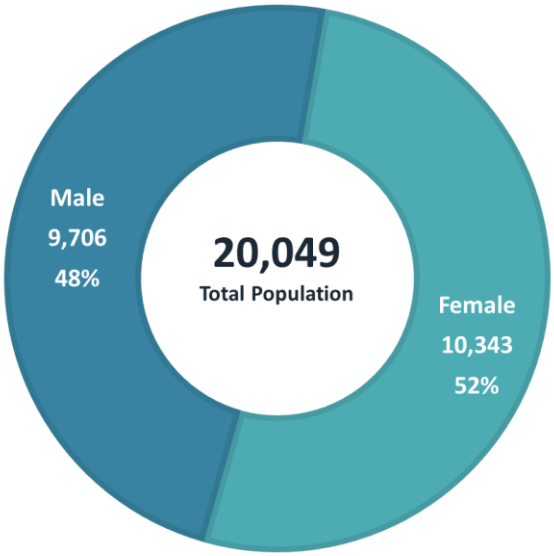
Additionally, for the transit service to be successful, it is important to invest in high quality transit stops with safe and comfortable pedestrian access and amenities for waiting passengers such as seating, shelter and information. Further analyses should identify the specific location of transit service stops in the community that will be used by both the trolley service and Route 40X, as well as needed pedestrian access and safety improvements such as sidewalks, crossings and lighting. A capital funding source, such as Lottery Revenue Bonds, is one funding opportunity that can be pursued to complete these capital improvements.

Appendix A – Demographic and Socioeconomic Profile

Appendix A – Demographic and Socioeconomic Profile

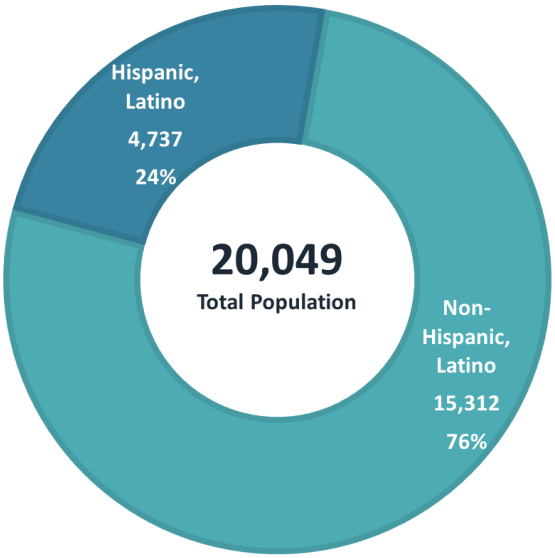
This appendix contains figures prepared by Walker Consultants with the data from the United States Census Bureau, 2014-2018 American Community Survey.

Figure 32: Monmouth and Independence Population



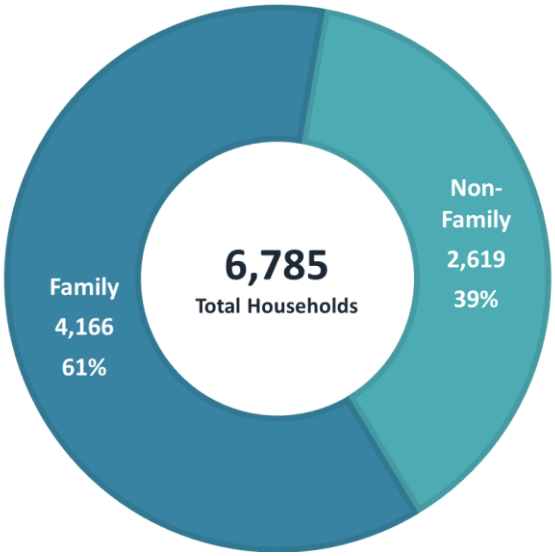
Population by Age		
0-17	4,856	24%
18-24	4,924	25%
25-39	4,168	21%
40-64	4,376	22%
65-84	1,514	8%
85+	211	1%

Figure 33: Monmouth and Independence Race and Ethnicity



	Non-Hispanic, Latino		Hispanic, Latino	
White	13,484	88%	3,460	73%
Black	536	4%	0	0%
American Indian	82	1%	12	0%
Asian	419	3%	0	0%
Hawaiian Pacific Islander	78	1%	0	0%
Other	25	0%	1071	23%
2 or more races	688	4%	194	4%

Figure 34: Monmouth and Independence Household Characteristics



	Family		Non-Family	
1-person	0	0%	1.489	57%
2-person	1,390	33%	800	31%
3-person	1,119	27%	241	9%
4-person	823	20%	89	3%
5-person	604	14%	0	0%
6-person	180	4%	0	0%
7 person	50	1%	0	0%

Figure 35: Monmouth and Independence Educational Attainment (25 years and over)

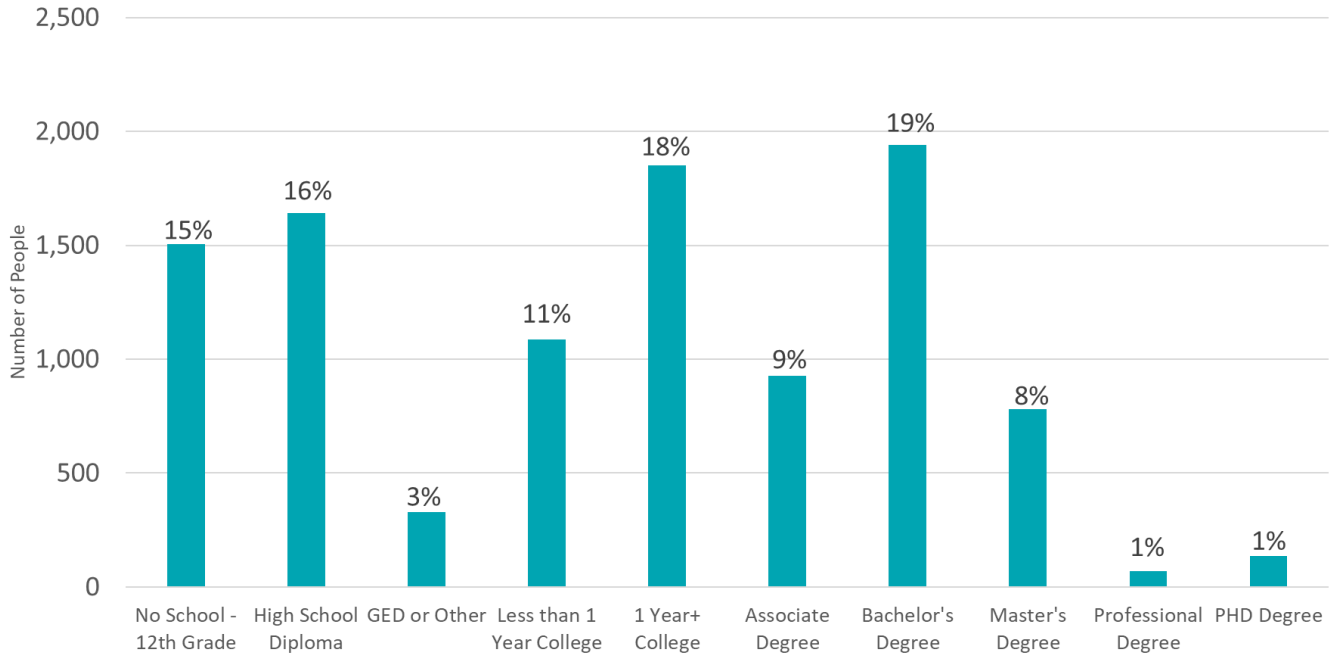


Figure 36: Monmouth and Independence Adult Employment Status

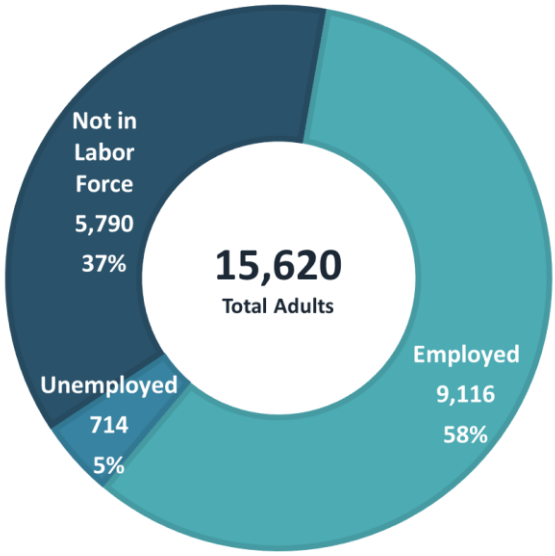


Figure 37: Monmouth and Independence Household Income

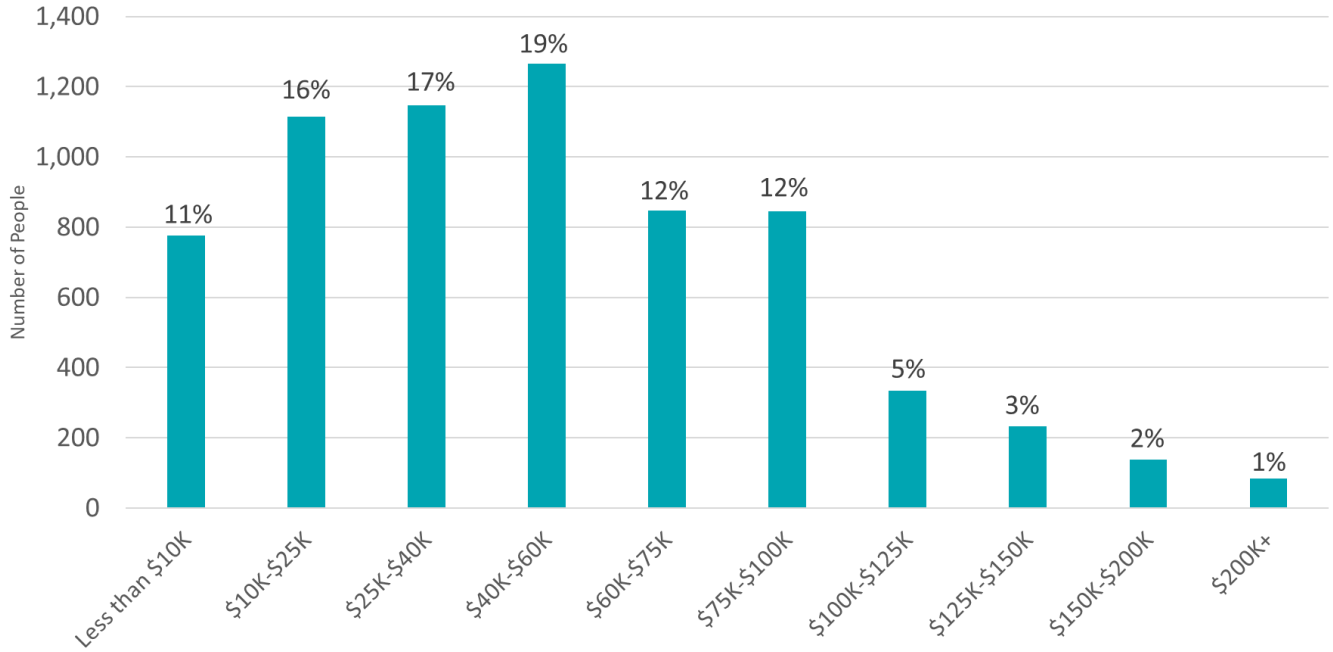


Figure 38: Monmouth and Independence Household Poverty Status

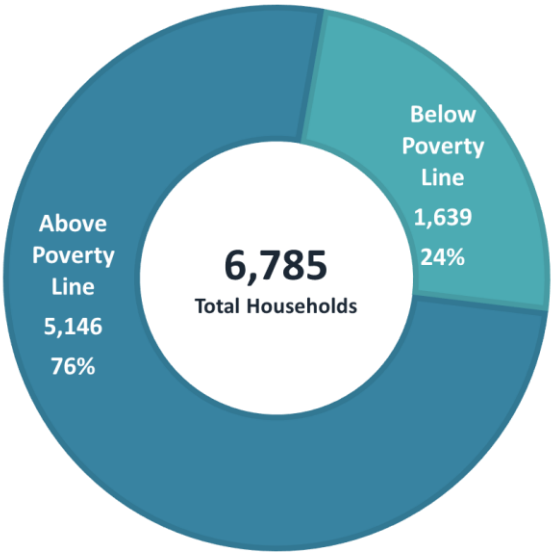


Figure 39: Monmouth and Independence Household Tenure

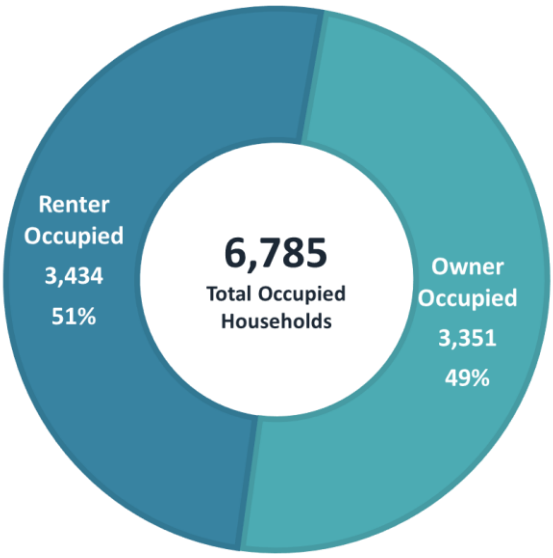


Figure 40: Monmouth and Independence Household Internet Access

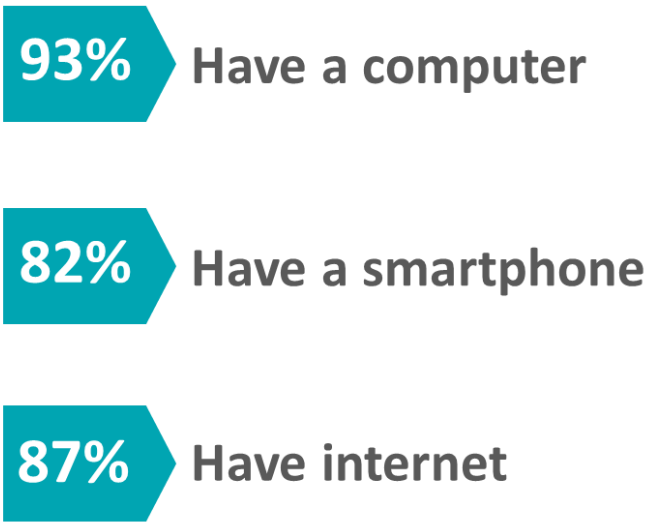


Figure 41: Monmouth and Independence Vehicles Available per Household

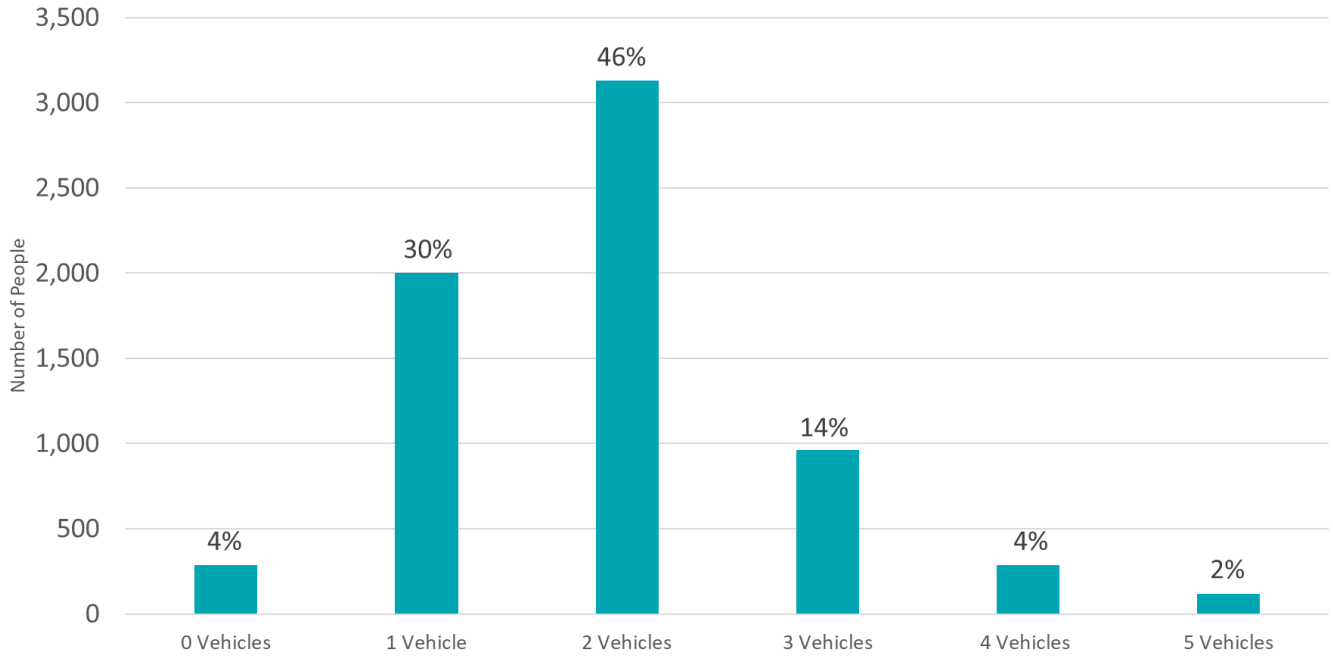


Figure 42:Monmouth and Independence Commute to Work Mode

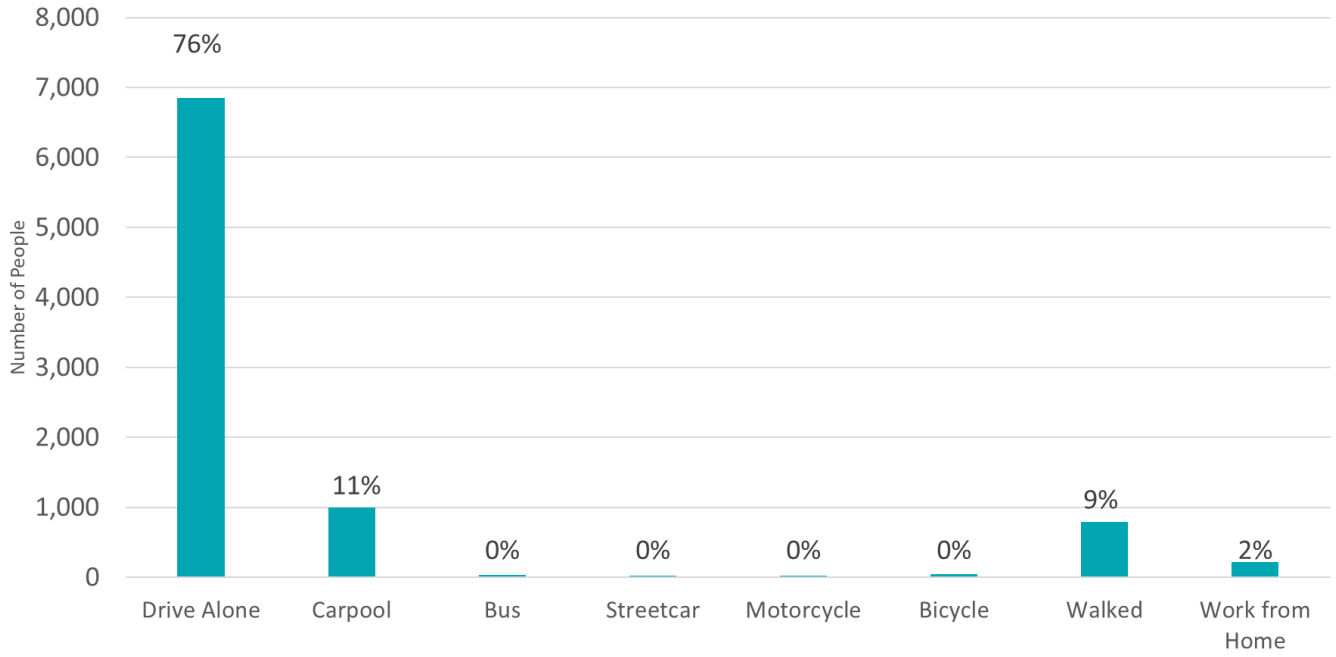
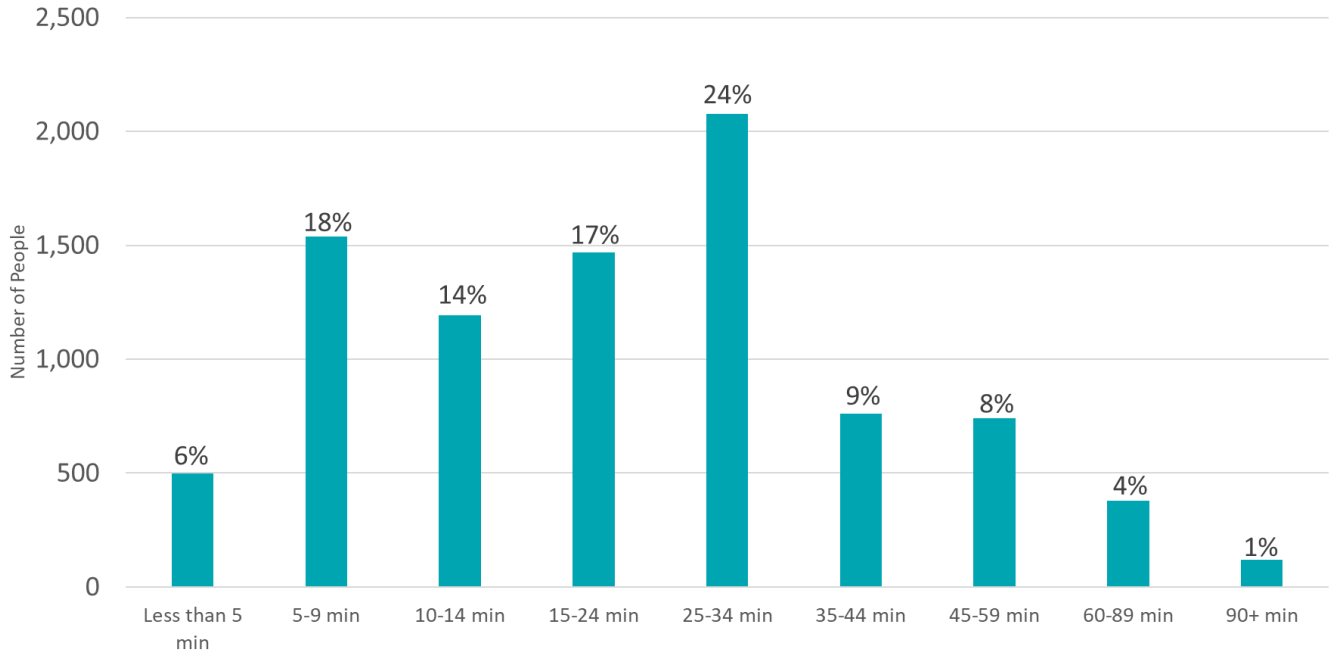


Figure 43: Monmouth and Independence Commute Travel Time



Appendix B– Transit Service Case Studies

Appendix B – Transit Service Case Studies

Smart Mobility Services

Bishop Ranch AV Shuttle

The Contra Costa Transportation Authority conducted a pilot project in partnership with the Bishop Ranch (business park in San Ramon, California) business community, autonomous technology company EasyMile, and Concord, California's GoMentum Station. The project allows the testing of Shared Autonomous Vehicles without a steering wheel, brake pedal, accelerator, driver's seat or driver in specified locations at Bishop Ranch in San Ramon, California to address first mile/last mile issues for Bishop Ranch employees.

California DMV passed legislation to allow the testing of AVs. The Bishop AV pilot project is the first driverless shuttle in California that the DMV has approved to drive on public roads.

The shuttles are all electric and equipped with GPS, LIDAR, and safety sensors. The maximum speed that the vehicles can operate is 35 mph. The vehicles can accommodate six people sitting and six people standing. An image of the AV shuttle is shown below:

Source: https://www.bishopranch.com/californias-first-driverless-bus-hits-the-road-in-san-ramon/

Cost Statistics

- The SAV vehicles cost approximately $250,000 per vehicle.[6]
- As part of California law, the operating entity must demonstrate proof of insurance for $5 million.[7]

[6] https://www.bishopranch.com/californias-first-driverless-bus-hits-the-road-in-san-ramon/
[7] https://learn.sharedusemobilitycenter.org/overview/contra-costa-transportation-authority-easymile-autonomous-vehicle-pilot/

City of Las Vegas AV Shuttle

The Innovation District in downtown Las Vegas has been pushing the boundaries on smart city technology, and one of its more popular tests to date is the one-year self-driving shuttle demonstration that started in November of 2017. The AV shuttle transports riders free of charge, around a 0.6-mile fixed-route loop that makes three stops, on Fremont Street and Carson Street, between Las Vegas Boulevard and 8th Street.

The shuttle can carry 8-seated passengers and is outfitted with LIDAR, GPS, and cameras, in addition to V2I (vehicle-to-infrastructure) technology that allows it to communicate with sensors embedded in Las Vegas' traffic signals to better manage the flow of traffic.

Keolis General Manager of Las Vegas Operations, Francis Julien stated that while the route is short, it's more complex than it seems. Not only does the route deal with stop lights and heavy tourist traffic — there are frequent events of drunk people running out into the road unexpectedly.

There are big plans for the shuttle project. Keolis plans to add a second shuttle, driving a slightly different route, as well as experimenting with route changes. Keolis sees the shuttle, and the separate Robotaxi pilot, taking pressure off of overworked transit agencies — as little vehicles like the shuttle can run low-demand routes, so a skilled human driver can focus on the larger-capacity vehicles. Plus, as studies have shown, driverless cars are generally safer drivers than a human.[8]

City of Columbus AV Shuttle

Three AV shuttles started operations in Columbus, OH in September 2018, on a designated 1-mile loop route along the Scioto Mile, connecting riders to the Columbus Center of Science and Industry, the National Veterans Memorial and Bicentennial Park. Shuttles had a steward on board. May Mobility, a Michigan-based startup, operated the Navya shuttles. Shuttles ran on a trial period for three-months, until December 2018, before taking passengers. Vehicles are in operation from 6:00 a.m. to 10 p.m., seven days a week.

The pilot is an initiative of Smart Columbus, Drive Ohio, and Ohio State University. Smart Columbus is a collaboration of the city and the Columbus Partnership, an organization of civic and business leaders. Drive Ohio is the state agency devoted to autonomous-vehicle research. The test is also a result of Columbus winning the Smart City Challenge in 2016 and with it a $40 million U.S. Department of Transportation grant and a $10 million grant from Paul G. Allen Philanthropies.

The downtown shuttle service is the first of a three-phase program that will include future testing in other locations of the city. The AV shuttle operations will be similar to a traditional transit service, with predetermined routes and stops.[9]

[8] https://www.govtech.com/fs/Las-Vegas-to-Launch-Innovation-District-Geared-Toward-High-Tech-Transportation-Testing.html
[9] https://www.govtech.com/fs/transportation/Columbus-Ohio-Prepares-to-Launch-Second-AV-Shuttle-Service.html

Community Connector

Gig Harbor PT Trolley

The Gig Harbor PT Trolley is a fixed-route trolley service that operates within Gig Harbor, Washington, connecting the historic downtown Gig Harbor waterfront district and the Uptown shopping district. The trolley is operated by Pierce Transit (PT). The service has been operating for seven summers, but did not operate in the summer of 2020, due to the COVID-19 pandemic.

The trolley has an approximately nine-mile route, making designated stops along the way. The vehicles used for the service are medium-duty transit vehicles, modified and outfitted as trolley vehicles, as shown in the image below.

Source: PT Trolley 2019 Brochure

Hours of Operation

The PT Trolley operates in the summer months and runs every 30 minutes. The trolley hours are as follows:

- Weekdays: 11:10 a.m. to 8:40 p.m.
- Saturdays: 10:40 a.m. to 9:10 p.m.
- Sundays: 12:10 p.m. to 6:40 p.m.

Fare

The fare for the trolley is as follows:[10]

- $0.50 single ride cash fare for Adults (ages 19 and up) and Youth (ages 6 - 18).
- $1.00 all-day pass cash fare for Adults and Youth
    - All day passes are $1.00 when purchased onboard the PT Trolley.
    - ORCA cards can be used, as well as valid passes and one ride tickets purchased on other PT routes.
- Free for children age five and under.
- Free for seniors and individuals with disabilities with valid Regional Reduced Fare Permit.

[10] https://www.piercetransit.org/pt-trolley/

Funding

The service is funded by Pierce Transit, the City of Gig Harbor, the Gig Harbor Chamber of Commerce, Merchants of Uptown, and the Gig Harbor Downtown Waterfront Alliance.

Ridership and Cost Statistics

The following ridership characteristics were recorded for the trolley service in 2018:[11]

- Total boardings: 15,378
- Service Miles: 28,693
- Revenue Miles: 22,393
- Service Hours: 1,891
- Revenue Hours: 1,682
- Service Cost: $290,756
- Average weekday boardings: 172
- Passengers per service hour: 8.1

Monterey-Salinas Trolley

The Monterey-Salinas Trolley is a fixed-route trolley service that operates within the City of Monterey, California, and connects local destinations such as downtown Monterey, Fisherman's Wharf, Cannery Row, and the Monterey Bay Aquarium. The trolley operates daily between Memorial Day and Labor Day and on weekends and holidays during the remainder of the year (the trolley does not operate on the Christmas and Thanksgiving holidays).

The trolley makes 12 designated stops. The vehicles used for the service are medium-duty transit vehicles, modified and outfitted as trolley vehicles, as shown in the image below. One of the trolley vehicles in the fleet is fully electric. This electric trolley is charged wirelessly via a charging system installed in the Monterey Transit Plaza stop, which transmits electricity to the trolley via magnetic waves (from a pad embedded in the pavement at the transit stop) when it is loading and unloading passengers.

Source: SeeMonterey.com

[11] https://www.wsdot.wa.gov/publications/manuals/fulltext/M3079/tdps/Pierce.pdf

Hours of Operation

The trolley provides daily service in the summer months (between Memorial Day and Labor Day) and runs every 15 minutes. The trolley hours are as follows:

- Summer:
  - May 25 – June 28:
    - 10:00 a.m. to 7:00 p.m. Daily
  - June 29 – September 2:
    - 10:00 a.m. to 7:00 p.m. Sunday through Friday
    - 10:00 a.m. to 8:00 p.m. Saturdays
- Off Season:
  - Weekends after Labor Day and before Memorial Day weekend:
    - 10:00 a.m. to 7:00 p.m. Weekends
- Holidays:
  - In addition to weekend service during the off season, the trolley provides service between 10:00 a.m. and 7:00 p.m. on the following holidays:
    - Martin Luther King Day
    - Presidents' Day
    - Memorial Day
    - Independence Day
    - Labor Day
  - The week of Thanksgiving (the trolley does not operate on Thanksgiving Day)
  - Winter holiday break (the two weeks including Christmas and New Year's Day) (the trolley does not operate on Christmas Day)

Fare

The trolley service is free to ride.

Funding

The service is funded by a partnership of the City of Monterey, Monterey Bay Aquarium, and Monterey-Salinas Transit.

Ridership Statistics

According to the Monterey-Salinas Transit 2019 Annual Report, approximately 180,000 passengers boarded the free trolley service in 2019.[12]

Rapid Charging Electric Trolley

One of the trolley vehicles in the fleet is a 2003 Optima Trolley retrofitted to be fully battery electric. The trolley vehicle is equipped with a wireless charging system. A charging pad is installed underground at the Monterey Transit Station and it takes 10-15 minutes to fully charge.

[12] https://mst.org/wp-content/media/MST_2019_Annual_Report_Web.pdf

The infrastructures costs include:[13]

- $425,000 for the electric vehicle conversion
- $660,000 for the wireless power transfer
- $454,000 for the road and power infrastructure

Monterey Salinas Transit received a $1.7 million Federal Transit Administration Clean Fuels Grant and $400,000 local match to complete the project.

King Street Trolley

The King Street trolley is a fixed-route trolley service that operates within Alexandria, Virginia, connecting the Potomac River waterfront to the King Street – Old Town Metrorail Station. The trolley is operated by Alexandria Transit Company (DASH). The service operates year round, but is temporary suspended due to the COVID-19 pandemic.

The trolley has an approximately three-mile route, making stops approximately every two to three blocks. The vehicles used for the service are heavy-duty transit vehicles, modified and outfitted as trolley vehicles, as shown in the image below.

Source: visitalexandria.com

Hours of Operation

The trolley operates year-round, every 10-15 minutes. The trolley hours are as follows:

- Sunday through Wednesday – 11:00 a.m. to 10:30 p.m.
- Thursday through Sunday – 10:30 a.m. to 12:00 a.m.

[13] https://caltransit.org/cta/assets/File/2018%20Fall%20Conference/Concurrent%20Sessions/FPP-Times%20Changin-Sedoryk.pdf .

Fare
The trolley is free to ride.

Funding
The City of Alexandria funds the trolley service through hotel tax revenue.[14]

Ridership and Cost Statistics
The following ridership characteristics were recorded for the trolley service in 2017:[15]

- Average daily boardings
  - Weekday – 1,978
  - Saturday – 3,531
  - Sunday – 3,250

EV/Clean Fuel Vehicles

FRED Shuttle, San Diego

The FRED Shuttle is a free on-demand shuttle service in downtown San Diego. FRED stands for Free Rider Everywhere Downtown. The program is operated by Circuit, a private company. Circuit operates free shuttle programs in other cities across New York, Florida, California, New Jersey, Colorado, Massachusetts, Illinois, and Texas. The City funding is from the meter and garage revenue in the downtown parking district.

Circuit vehicles are six-person all-electric vehicles. Sponsors that help fund the service display advertisements on the inside and outside of the vehicles. The vehicles are registered as Low Speed Vehicles (LSV's), meaning they are street legal on roads 35 mph or less. An example of a vehicle is shown in the image below.

Source: Nelvin C. Cepeda, San Diego Union-Tribune.

[14] https://www.alexandriava.gov/uploadedFiles/tes/Alexandria%20Transit%20Vision%20Final%20Report%20_2020-02-24.pdf
[15] https://www.dashbus.com/sites/default/files/pdfs/FY19-FY24%20ATC%20Transit%20Development%20Plan_F0510201805.10.18.pdf

Reservations for service are made using a smart phone app, that can be downloaded on Apple and Android devices. Potential riders are allowed to hail or flag a ride; however, the driver must have a safe, accessible, and legal space for pick up. App requests take priority over flag down service.

Hours of Operation

The hours of operation for the service are as follows:

- Monday through Friday - 7:00 a.m. to 9:00 p.m.
- Saturday – 8:00 a.m. to 9:00 p.m.
- Sunday – 9:00 a.m. to 9:00 p.m.

Fare

The FRED shuttle is free of charge for riders.

Funding

Circuit has received approximately $5.7 million from the City of San Diego to operate the program for five years.

Advertising revenue also funds the service, and the following numbers were reported:[16]

- $222,000 in 2017
- $444,000 in 2018

Ridership and Cost Statistics

The following ridership statistics were recorded for the shuttle service:[17]

- Annual ridership
  - 132,000 in 2017
  - 194,600 in 2018
- Monthly ridership
  - 17,500
- Annual operating costs - $1.1 million

Rethink Your Drive, Vancouver

Rethink Your Drive (Ryd) is an emerging shuttle service in downtown Vancouver, Washington. The service was developed by LSW Architects to address the challenge of providing convenient parking at its downtown office. In early 2018, the company obtained a vehicle and started beta testing the idea and how it would work.

In the future, the plan is to expand the service to other commuters and to the general public. The service will be designed to give people a ride downtown when they park along the perimeter of the downtown area. During peak

[16] https://www.sandiegouniontribune.com/business/growth-development/sd-fi-fred-free-shuttle-improvements-20190112-story.html
[17] https://www.sandiegouniontribune.com/business/growth-development/sd-fi-fred-free-shuttle-improvements-20190112-story.html

commute hours, employees of the companies that partner with Ryd will receive priority. Ryd has also made contact with owners of surface lots on the perimeter of downtown to provide parking for Ryd riders at a reduced cost.

To book a shuttle, riders will call or send a text message to Ryd, which will pick them up and drop them off at their final destination during weekday business hours. Ryd vehicles are all electric five-seat vehicles. An example of a Ryd vehicle is shown in the image below:

Source: ryd.green

Hours of Operation

Monday through Friday - 8:30 a.m. to 4:30 p.m.

Fare

The intent is for the shuttle to be free for those using it to commute around downtown during the day. Commuters will get front-door service for a fee.

Funding

In addition to LSW Architects, whose staff founded Ryd, the organization has partnered with Clark Public Utilities, C-Tran, CREDC Economic Development, and the City of Vancouver, WA.

Fixed and Flex Routes

Fresno County Rural Transit Agency

Fresno County Rural Transit Agency (FCRTA) is the primary provider of public transportation services in the rural areas of Fresno County. Rural public transit services are provided within the thirteen (13) incorporated cities that comprise the agency's joint powers agreement and the rural areas surrounding them. FCRTA operates a family of services (through a subcontract with a private provider) that include Inter-City fixed and flex-route services, Intra-City on demand services and dial-a-ride service for persons with disabilities in the rural areas of Fresno County, outside the sphere of influence of the thirteen member cities and the metro area of Fresno and Clovis.

FCRTA services comprise 23 different routes or subsystems (service zones) providing various degrees of service. A few subsystems such as Sanger Transit provide on-demand service within a community of 25,000 people (similar in size to Independence and Monmouth) and fixed-route service to Fresno with connections to nearby communities such as Reedley, Parlier and Orange Cove (similar to Route 40X on the Cherriots Regional service).

FCRTA operates a fleet of more than 100 vehicles which include 30-40 passenger heavy-duty transit vehicles, 12-22 passenger shuttle vehicles and 5-passenger sedan vehicles. FCRTA has been replacing their fleet with Electric Vehicles of all sizes including Chevy Bolts, Zenith shuttles and Proterra buses.

Source: https://fresnoalliance.com/central-valley-residents-design-public-transit-line/

Hours of Operation

Service hours on the Intra-City on-demand service are from 7:00 a.m. to 5:30 p.m., Monday to Friday, and from 8:00 a.m. to 5:00 p.m. on Saturday. It requires a reservation by calling to FCRTA's call center to book a ride at least 24 hours in advance.

Service hours on the Inter-City flex-route service are from 6:45 a.m. to 4:00 p.m. There are 6 roundtrips provided throughout the day, Monday to Friday only.

Fare

The service has a different fare cost for the general public and the elderly (60 years or older), disabled and children riding with and adult:

- General public fare is $1.75 for a single ride, $3.50 for a roundtrip and $70.00 for a monthly pass
- Elderly, disabled and children riding with an adult's fare is $0.85 for a single ride, $1.70 for a roundtrip and $34.00 for a monthly pass

Funding

The Sanger Transit subsystem and all other services provided by FCRTA are funded through a mix of federal and state grants, local tax and sales tax measures from the county and incorporated cities that make up the FCRTA joint powers agreement, and fare receipts.

Cost and Ridership

The annual cost of service in FY 2018/2019 for the Sanger Transit subsystem was $525,242.[18] The system carried 48,443 passengers and provided 9,626 hours of service, for a performance of 5.03 passengers per hour of service, and an average cost of $10.84 per passenger. Fare revenues only covered 6.4% of operational costs.

[18] https://www.ruraltransit.org/wp-content/uploads/2019/06/Rural-SRTP-2020-2024-1.pdf

Columbia County Rider

The Columbia County Rider ("CC Rider") is a flex route bus service that operates within Columbia County, Oregon. CC Rider provides service between the communities of Rainier, St. Helens, Scappoose, Vernonia, and others, including trips to Banks, Beaverton, Portland, and Kelso/Longview in Washington.

CC Rider currently has six bus lines, a dial-a-ride service, and service to Portland Hospitals. Each of the services has different frequency and routes. One of the six bus lines is a flex route (South County Flex Route). The route is designed such that there is extra time built into the schedule to allow the bus to deviate a short distance off its designated route to assist elderly or disabled passengers as well as the general public who may have difficulty getting to flex route stop.

Hours of Operation

The hours of operation for CC Rider vary, depending on the line. The South County Flex Route operates 5 round trips between Columbia City, St. Helens and Scappoose throughout the day, from 7:30 a.m. to 5:00 p.m.

Fares

The CC Rider fares are as follows (as of March 2, 2020):[19]

- In county-- $2.00
- Out of county - $3.00
- Monthly pass - $120

Funding

Funding for CC Rider comes from grants (60 percent), fares (25 percent), contracts (9 percent), and County General Fund and other local sources (5 percent).[20]

Cost Statistics

The following cost statistics were recorded for CC Rider in 2019:[21]

- Total expense budget: $2.57 million
  - Personnel – 11 percent
  - Operation – 53 percent
  - Capital – 20 percent
  - Dept (payback County loan) – 16 percent

On Demand Services

West Salem Connector

The West Salem Connector bus service was a pilot project, providing flexible on-demand transit service in Salem, Oregon between 2015 and 2017. The service was operated by Salem Area Mass Transit District, locally known as

[19] https://www.nworegontransit.org/new-fares-march-1-2020/
[20] https://www.nworegontransit.org/ccrider-by-the-numbers/
[21] https://www.nworegontransit.org/ccrider-by-the-numbers/

Cherriots, and was a reservation-based, on-demand transit service. When a rider booked trips online or by calling, software automatically generated a trip manifest and that information was relayed to the bus driver via on-board tablets. In April 2017, the Cherriots Board of Directors voted to end the pilot program and directed staff to explore fixed-route alternatives. The Connector provided on-demand transit service between any two of approximately 25 designated "connector points" within West Salem. These "connector points" included locations within residential areas, as well as destinations such as local schools and the Glen Creek Transit Center, where passengers transferred to a fixed route transit service to downtown Salem. The Connector bus only ran when requested and connected low-density suburban neighborhoods to frequent transit routes.

West Salem Connector vehicles were 14-passenger cutaway vehicles, as shown below.

Source: Cherriots.org

Funding

The Cherriots organization is funded through local property taxes, as well as state and federal funding.[22]

The West Salem Connector pilot was funded through discretionary budget by the Cherriots Board of Directors.

Fare

Riders paid using the standard Cherriots fares on the Connector bus. Currently, Cherriots local fares are $1.60 for a one-way trip ($0.80 reduced fare and $0.50 youth fare), and $3.25 for a day pass ($1.50 reduced fare and $1.00 youth fare).[23]

[22] https://www.cherriots.org/organization/.

[23] https://www.cherriots.org/fares/

Ridership Statistics

Between June 2016 and May 2017, the West Salem Connector service ranged between 17 and 70 boardings per day.[24] In its first year of service, the Connector bus averaged 3.3 boardings per revenue hour.[25]

BFT Connect

BFT Connect is an on-demand ride service operated by Ben Franklin Transit, in partnership with Via (private mobility company). The service was first launched in April 2020 and was expanded to the full-service area in May 2020. The service is primarily designed to get riders from home to a frequent bus route. During the COVID-19 pandemic, the service is also taking riders to certain essential businesses including grocery stores, pharmacies and health care facilities.

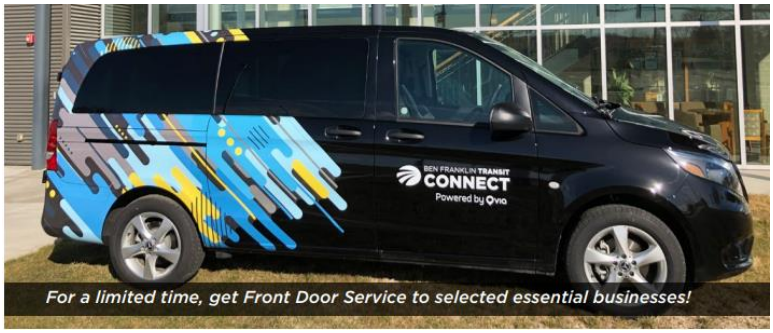
The service is a shared ride service, meaning riders share a ride with several people along the route, each traveling to different places. However, during the COVID-19 pandemic, riders ride alone or with a known companion.

The service runs in the Tri-Cities area of Kennewick, Pasco, and West Richland. There are six CONNECT service zones in the Tri-Cities:

1. Central Kennewick and Finley
2. Central Richland
3. Columbia Center and S. Richland
4. East Pasco
5. West Pasco
6. West Richland and Badger Mountain

Riders can travel between any intersection and designated locations, called Transit Connections. Riders may be asked to walk to a nearby intersection to get picked up. Riders already at Transit Connections can choose to return to any location in the same CONNECT zone and will be dropped off at a nearby intersection.

The service vehicles are in the form of passenger transport vans, as shown in the image below.



Source: bft.org/services/connect

[24] Cherriots, Lessons Learned from the West Salem Connector On-Demand Transit Pilot Project, Powerpoint Presentation, 2017.

[25] Oregon Sustainable Transportation Initiative (OSTI), Case Study: Flexible Transit Service, updated.

Riders book a ride using the Via App, which can be downloaded to an Apple or Android device. Those without a smart phone can call to reserve a ride. Using the app, riders verify their location. The zone boundary and designated stops will appear in the app. Riders can also pay for a CONNECT trip using the app and receive a transfer for any BFT bus route.

Hours of Operation

The hours of operation (as of June 8, 2020) for the service are as follows:[26]

- Monday through Friday – 7:00 a.m. to 7:00 p.m.
- Saturday – 9:00 a.m. to 5:00 p.m.

Fare

There will be a fee associated with the service. However, during the COVID-19 pandemic, rides are free. After COVID-19, the fares will be as follows:[27]

- TO Transit Connections: $3.00 per ride in a zone, which includes a transfer to board a BFT bus. A valid Freedom pass waives the $3.00 fee; other valid BFT fare media discounts the fee to $1.50.
- FROM Transit Connections: $1.50 with a valid transfer or BFT fare media when transferring into a van at a designated Transit Connection.

Via to Transit

The Via to Transit program is a partnership between King County Metro, the City of Seattle, and on-demand transportation provider Via. The Service operates in the Rainier Valley in the greater Seattle, Washington area, connecting riders to light rail service at Othello, Rainier Beach, and the Tukwila International Boulevard light rail stations. Via is a private company, contracted by King County Metro, to provide vans, drivers, and technology to operate the service.

Riders book a ride on-demand with the Via app or over the phone and pay upon boarding with the rider's ORCA card, Transit GO ticket, or using a credit/debit card with the Via app or call center. Pickups are typically within 10-15 minutes of the rider's trip request and rides will be shared with other King County Metro customers. When requesting a pickup, the rider is assigned to a nearby pickup location, no more than five minutes away. Via to Transit trips are limited to established service areas, southeast Seattle for the Othello and Rainier Beach light rail stations, and the Tukwila area for the Tukwila International Boulevard light rail station. One end of the trip (either the destination or the origin) must be the designated Link light rail station for the service area. The Program also provides wheelchair accessible vehicles for disabled riders.

Service is provided by designated passenger transport vans provided by the Via company, as shown below.

[26] https://www.bft.org/services/connect/
[27] https://www.bft.org/services/connect-faqs/

Source: kingcounty.gov.

Fares

Fares are paid through the Via app and are collected via the rider's ORCA card (with allows the rider to transfer fares between Via and King County Metro buses or light rail) or credit/debit.[28] Fares are as follows:

- Adults (19 years and older): $2.75
- Youth (6-18 years old): $1.50
- RRFP cardholders (registered seniors, Medicare, disabled persons): $1.00
- ORCA LIFT cardholders (income qualified): $1.50

Hours of Operation

The Southeast Seattle service areas (serving the Othello and Rainier Beach light rail stations) provide service during the following times:

- Monday through Saturday
  - 5:00 a.m. to 1:00 a.m.
- Sunday
  - 6:00 a.m. to 12:00 a.m.

The Tukwila service area (serving the Tukwila International Boulevard light rail station) provides service during peak commute times only, as follows:

- Monday through Friday
  - 6:00 a.m. to 9:00 a.m.
  - 3:30 p.m. to 6:30 p.m.

[28] https://kingcounty.gov/depts/transportation/metro/programs-projects/innovation-technology/innovative-mobility/on-demand/via-to-transit.aspx

Funding

Launched in April 2019, the Via to Transit program is funded by $2.7 million from Seattle's transportation benefits district levy, a $350,000 federal Transit Administration Grant, and $100,000 each from King County Metro and Sound Transit.[29]

Ridership

Between April 2019 and March 2020, Via to Transit averaged 800 daily riders.[30]

[29] https://crosscut.com/2019/08/seattles-microtransit-experiment-drives-people-light-rail-it-working
[30] https://www.theurbanist.org/2020/06/17/via-to-transit-on-demand-shuttle-service-is-back/,

Appendix C– PAC Detailed Meeting Notes

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Project Advisory Committee #1

The first Project Advisory Committee meeting occurred Wednesday September 23, 2020 from 3:00 p.m. to 5:00 p.m. via Zoom.

Participants

- Fred Evander – Community Planner, City of Independence, OR
- Shawn Irvine – Economic Development Director, City of Independence, OR
- Miriam Haugen – Owner of Haugens Galleri Portrait Studio in Monmouth, OR
- Emmanuel Macias – Assistant to VP of Student Affairs at West Oregon University, Manager of Wolf Ride, WOU's safe ride program for students
- Laura Freeborn – Parking Manager at Western Oregon University
- Rebecca Chiles – Director of Safety at Western Oregon University
- Ted Stonecliffe – Transit Planner at Cherriots, the operator of regional transit service in Polk and Marion Counties.
- Roxanne Beltz – Monmouth City Council member, and Manager of Cherriots Trip Choice program
- John Bracken – Owner of Crush Wine Bar and wine tours operator in Monmouth, OR
- Evan Sorce – Representative Paul Evans Deputy, House District 20, including Independence, Monmouth and West Salem
- Kate Schwartzer – President of City of Independence Downtown Association, owner of Indy Commons Co-working facility
- Marilyn Morton – Independence City Council member

Project Goals and Motivations

Overall goals for the project are:

- To provide a transit connection between Monmouth and Independence that meets the needs of residents and businesses,
- To reduce traffic and delay the need for expansion of arterial streets,
- To have the capacity in the case of an emergency to get people out, for instance we have a lot of senior homes that may need additional modes for evacuation,
- To provide students with an option to get from point A to B
- To provide an option for visitors to move around the cities and sightseeing without the need to get on a car

The study is a joint project between the Cities of Independence and Monmouth and Western Oregon University (WOU). The City of Monmouth is working on an economic development plan and would like this project to fit into the plan's vision, as well as into the City of Independence's vision.

- The City of Independence is completing a Transportation System Plan update
- WOU indicates that there isn't enough parking on campus for students. At the same time, many students are first generation students from low income families and international students that do not bring a car to campus and need transportation alternatives.

The purpose of the study is to determine the feasibility of implementing and operating a local transit service, to find out whether there will be sufficient demand and whether the community – both residents and businesses, will support it.

- The funding for the study comes from a state grant. It was partly sold on the idea that it could be used as emergency response, in the case of an emergency [such as mandated evacuations from recent wildfires or earthquake activity in the Cascadia subduction zone that runs north-south along the valley], and the promotion of the cities as a tourist destination or basecamp to visit wineries around the valley, to attract people to come and visit.
- The idea for the service is to provide something that is unique to the conditions and needs of the community and that complements the services that are provided by Cherriots on routes 40X and 45.
- The starting vision is a trolley service similar to the one in Alexandria, Virginia [which operates in the historic district, and provides mobility to visitors of the area and supports the businesses along King Street].
- However, the study should consider a range of possibilities that include on-demand flexible service, fixed-route circulation service, and clean fuel vehicles.

The study will have to analyze the feasibility of operating the service year-round or during the summer season or both with a flexible approach to seasonal demands.

- During summer, the service could provide connections to wineries or to wine tour operations, so that visitors have an option to visit the area without driving.
- The idea isn't to take away business from tour operators but to provide residents with access to jobs, and visitors with access from hotels to nearby wineries.
- Access to wineries could be provided for specific events in coordination with the Chamber of Commerce and not be a consistent part of the regular service, nor the sole mission of the service.
- Some wineries have limited parking, and many don't allow limousine service because they bring people that are too drunk. Though many wineries have dirt access roads that could limit public transit service and access with large vehicles.

The study will evaluate whether it is better to serve the two communities and students of WOU than to be a circulator service to wineries.

- The new Cherriots Route 45 service is installing stops one-quarter of a mile apart along its designated route and will operate every two hours between Dallas, Monmouth and Independence. A new option serving the two communities and WOU would be great to augment the Route 45's service and increase frequency along the Monmouth-Main Street corridor.
- It would be best not to operate the new service seasonally and dedicate a vehicle to the service year-round and perhaps have another vehicle or route for wine tours or special events that is not regular public transit.
- The connection between the two cities and WOU would need at least two vehicles to provide a 15-minute frequency between the communities.
- Time of day and scheduling of the service can be such that complements other services as well. WOU operates Wolf Ride every day from 7:00 p.m. to midnight. Students would benefit from a local service

during the morning and afternoon. They are already walking and biking to campus, as many of them do not have a car.

- It is also difficult for City of Independence businesses to capitalize on the student population because of the distance from Monmouth.

Existing Cherriots service on route 40X and the new Route 45 provide connections to Salem and Dallas. The service intervals or headways are infrequent and hard to rely on for work trips or time-sensitive trips.

- Independence and Monmouth are growing communities, people need more options to move around and not drive and not deal with parking.
- Parking is an issue in Monmouth due to [parking spillover from] the university, and not enough parking in downtown. Downtown Independence has expressed similar parking concerns. So, the trolley should fit within the strategic solutions for parking in downtown.
- The service needs to be cheap and affordable to riders; ideally fare free.
- Riding the trolley should be a fun event in itself. It could include carolers at Christmas and a customer service guide or tour guide.
- The service would provide WOU students with more independence and opportunities. It would also help with recruitment of new students.
- There are many senior homes and care facilities in the community. It would be helpful to have an option to travel between cities for older populations, to reach services such as medical appointments.
- Planning the service for special events and providing an attractive and reliable option for people to move around are competing priorities and may be difficult to implement.

Bike sharing experience. SPIN dropped a fleet of dockless shared bikes in Monmouth, most precisely around the WOU campus, about two years ago, without notifying the cities or WOU.

- They were a great transportation option for students, but the bikes were junky, they would break down quickly and were poorly maintained. Bikes were left in sidewalks and yards and people complained about it. We didn't have control and there were no regulations on how to enforce bikeshare distribution and parking locations. They need designated places for parking on campus and around the city.
- Many people rode a bike for the first time in years. People didn't just use on campus but everywhere, many bikes made it to downtown Independence, even though there aren't great connections between the two cities [except for Monmouth-Main Street which is an arterial road and state highway].
- Both cities were caught blindsided by the bike share usage, it expanded well beyond the university very quickly.
- The experiment showed that people want mobility options such as a bike-sharing system, but it would need to be deployed in a better way. When SPIN transitioned from bikes to scooters, it didn't bring scooters on to Monmouth, and WOU didn't want to bring them either because of the management challenges that are involved.
- There is interest in bringing scooters to the community from everyone, but it would need to be under a clear operational and management contract, and in coordination between the two cities and the university.

Service Operations and Vehicles

The Cities of Independence and Monmouth do not see themselves operating the new transit service. WOU would not operate the service either. Initially the cities envisioned hiring Cherriots to operate the service or another outside entity. They would like the cities to have a sense of ownership over the service.

- The service could be operated with volunteer drivers such as senior residents, or with low-cost drivers such as WOU students. Driving the service could be a job opportunity for students that need income to pay for college.
- A few examples exist in the region of transportation service operations with volunteers. There is a shuttle run by the Sweet Home senior center. There is a shuttle run by veterans in the City of Woodburn to the Portland VA Hospital, since 1970.

Fixed-route versus on-demand operation. There is a range of service delivery options and they have implications on the type of vehicle. Trolley vehicles should be ADA accessible. Smaller vehicle types that are not ADA accessible would need to be funded locally and not through state sources.

- Cherriots can operate routes 40X and 45 without complementary fixed-route service, because both are categorized as commute service options, and are exempt. A local fixed-route operation that is funded publicly would require complementary ADA service such as Cherry LIFT in Salem-Keizer.
- The goal for the trolley is to be a circulator. On-demand service with smaller vehicles sort of defeats the purpose. The West Salem Connector experience was appreciated in certain pockets but not on others. The service is envisioned to run back and forth from downtown Independence to downtown Monmouth, along Monmouth and Main Streets.
- The service has to be convenient and time sensitive and it could augment Route 45 by running more frequently. Timing [of service trips] is important so students know when they can get to class.
- Cherriots conducted a survey with riders for planning of Route 45. Frequency and reliability of service were at the top of the list. Having designated stops and stop improvements are important for transit service, and for users to understand where to catch the service.
- Streets in Monmouth and Independent are narrow, so service vehicles that circulate through the community would need to be smaller in size to fit in the streets.
- The vehicle should be green and fuel efficient, consistent with Governor Brown's vision.

Funding

None of the cities have funding identified for the service. They would like to know whether it is feasible first, whether there is demand and interest for it. If the service can be justified, they may secure money [apply for a grant] from the legislature. But they should also look for support in the community.

- One option is to talk to the student government body and perhaps have a fee passed to include in their tuition to pay for bus service, as they have done at Oregon State University in Corvallis. WOU students do not currently pay for bus service or a bus pass agreement with Cherriots. Cherriots has talked to the university in the past but hasn't gotten support mostly because of the limited service times that are available on Routes 40X, which runs once an hour and doesn't work with class schedules.
- They would like to make the service fare free or very cheap. Perhaps pursue grants and get Central High School on board as a funding partner, with high school students showing ID to ride the service. Perhaps partnering with other organizations in the community such as senior centers and downtown businesses.

- Another option is to sell advertising space on the side of vehicles. Vehicles could be a place to showcase events going into the towns such as Friday night concerts in the park, music in the park, and other events. They could also include a brochure rack inside the vehicle to explore what is accessible to the trolley route.
- If there is state and/or federal funding involved, the service would have to follow rules around charter service for trips to wineries and special events.

The PAC expressed concerns about the long-term sustainability of the service, and not generate the impression that there would be tax increases to fund the service.

- The trolley in Alexandria, VA was funded by grants and transit fares, once the service became popular, the government stepped in to make it free. The Independence-Monmouth service could follow the same route, start with fares and seek long-term funding to make it free.
- The service would not raise taxes. Local transit improvements come out of the statewide payroll tax. The public would pay for the service using fares.
- The service should build in financial stability, so people don't get used to the service and then it is removed. Multiple organizations could contribute small amounts to fund.
- The service would need to provide usable service for several needs, because of its scale and to demonstrate its utility to attract multiple partners.

Community Survey and Distribution

At first glance the survey questionnaire looks dense. It should be done online. The questions about travel time and destinations may be duplicative, they could list known places such as Dallas or Salem, to provide an idea of distance and time of travel.

- The questions are doable if provide in Survey Monkey. Ideally reflect existing transit services such as 40X and the new Route 45. It may be possible to eliminate the demographic questions to shorten the survey.
- Question 15 asking to select a preferred vehicle type would be more useful if it rated vehicles from 1 to 5 and added images for the vehicles to facilitate understanding.
- Also, it would be great to add a COVID-19 related question in relation to perceptions and attitudes of riding transit. Is it possible to take a potential COVID-19 bias off the survey?

In relation to dissemination of the survey. The survey link can be shared with local Facebook groups, the Monmouth Mayor's notes and newsletters. It would be great to offer an incentive to respond the survey such as a $25 gift card to local businesses.

- The survey link can also be shared with the chamber of commerce and the cities' downtown associations and businesses lists.
- Additionally, WOU can include in communications with faculty and staff and send to the student government president for distribution to students.
- Other groups include the school district and the Women of Independence/Monmouth Facebook group
- Cherriots can disseminate through its Facebook page and Twitter account.
- It would be great to have version of the survey in Spanish.

Stakeholder Participation

Potential stakeholders to follow up with include:

- Barbara Hogan, Executive Director of the City of Monmouth's senior center

- Kathleen Mason, Executive Director of Monmouth Independence Chamber of Commerce
- John Hamblin at Marquis Spas, from a workforce development perspective
- Someone from hotel businesses
- Someone from low income service providers – Fred Evander will reach out
- Someone from the Central School District – Roxanne Beltz will reach out
- Someone from the winery businesses

Next Steps

- Walker requested to get feedback about the survey
- Schedule PAC meetings every month, from October to December.
- Launch survey in mid-October.
- Reach out to identified stakeholders for a phone interview.

Additional Comments

Comments Received from Cherriots via email on 09/29/2020:

- If funding comes from state and/or federal sources, the vehicles must be ADA accessible. If a smaller, non-ADA accessible vehicle is chosen, then paratransit would have to be provided. Route 45 will not satisfy the paratransit requirement because we do not have an eligibility requirement for deviations, and we are able to limit the number of deviations of Route 45. This would not be true for paratransit (the ADA mandates that all requested trips be accommodated whenever the local fixed route service is running).
- The Gig Harbor and Monterey-Salinas examples given work in those communities because the local cities have paratransit (Pierce County Transit operates LIFT service in Gig Harbor and Monterey-Salinas Transit provides RIDES in Monterey and many other cities in Monterey County).
- The new service, if funded with state and/or federal grants, would have to be either a deviated fixed route (DFR) or a pure dial-a-ride service, in order to avoid the requirement for paratransit. A DFR like the Route 45 would be the most efficient. That's why Cherriots is very interested in partnering with the cities to augment Route 45 to make it a useful service, running much more than every 2 hours. The additional vehicles could be something fun and inviting and could run just within Monmouth-Independence instead of going all the way to Dallas for the bigger run.
- If you like, we could provide a brief explanation of what Route 45 will look like at the next TAC meeting.
- If privately funded (local businesses, WOU, cities, etc.), the options are much greater, but the owner/operator will have to decide who will be operating the service. If reservations are part of the service, how will those be collected, managed, and dispatched?
- In your survey, you should have an option in the questions about trip destinations to indicate whether the trip is within Monmouth and Independence or outside (indicating a regional trip).
- There should be at least one COVID related question, asking if people are willing to consider riding transit during the current pandemic. Even if the assumption is that the pandemic will be over by the time the trolley would be up and running, there still might be a stigma (real or unreal) about getting into a crowded bus with other people for more than 15 minutes.

Project Advisory Committee #3

On December 2, 2020 during the Planning Advisory Committee meeting, Walker facilitated a Trolley Route Planning exercise to gain feedback from the Committee regarding three potential trolley routes. The trolley route planning exercise was done through the community engagement platform Mural. Committee participants received a link to the Mural and participated in the exercise live during the December 2 meeting.

The three proposed trolley routes discussed included:

1. Option A: 3-mile route (2 vehicles = 15-minute service)
2. Option B: 4.5-mile route (2 vehicles = 20/25-minute service)
3. Option C: 6-mile route (2 vehicles = 30-minute service)

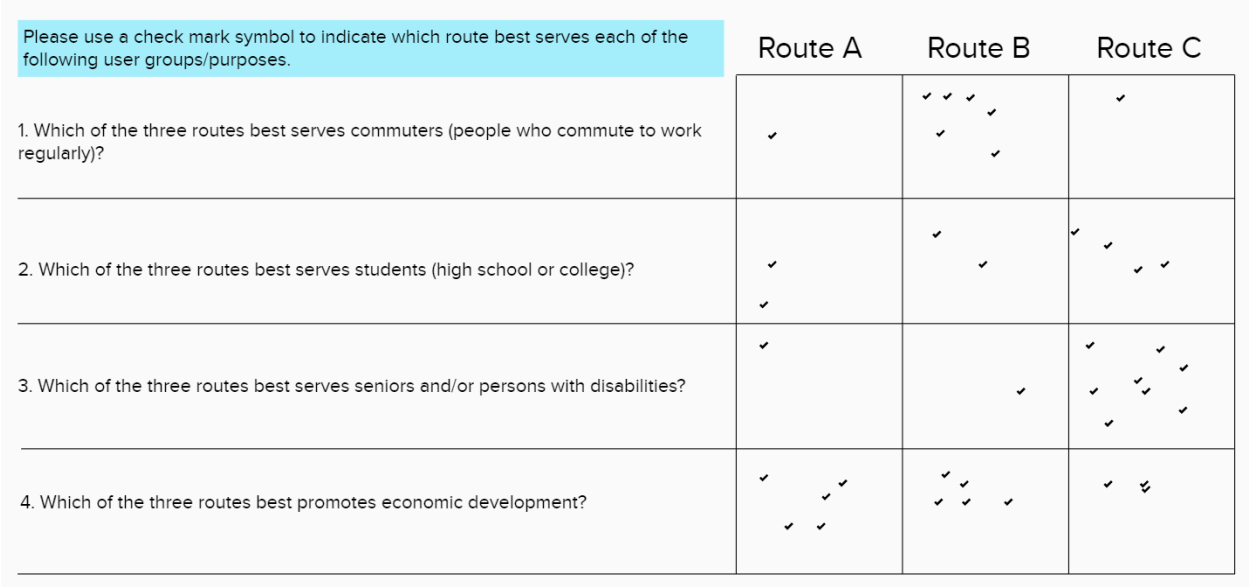
The first portion of the Mural exercise included a series of questions regarding the four potential routes:

5. Which of the three routes best serves commuters (people who commute to work regularly)?
6. Which of the three routes best serves students (high school or college)?
7. Which of the three routes best services seniors and/or persons with disabilities?
8. Which of the three routes best promotes economic development?

The following figure summarizes the responses to the four route planning exercise questions. The key findings include:

- A majority of respondents reported that Option B would best serve commuters (people who commute to work regularly). Route B directly connects Downtown Independence and Downtown Monmouth. While Route C would provide more direct access to large employers such as Marquis Corp than Option B, Option B has fewer deviations, which would result in a shorter commute time.
- Respondents reported that overall, Option C would best serve students. Option C provides the most direct access to Western Oregon University.
- A majority of respondents reported that Option C would best serve seniors and/or persons with disabilities. Route C provides more direct access to more destinations.
- Respondents reported that both Option A and Option B would best promote economic development. Both Option A and Option B serve Downtown Independence and Downtown Monmouth.

Route Planning Questions



Please use a check mark symbol to indicate which route best serves each of the following user groups/purposes.	Route A	Route B	Route C
1. Which of the three routes best serves commuters (people who commute to work regularly)?			
2. Which of the three routes best serves students (high school or college)?			
3. Which of the three routes best serves seniors and/or persons with disabilities?			
4. Which of the three routes best promotes economic development?			

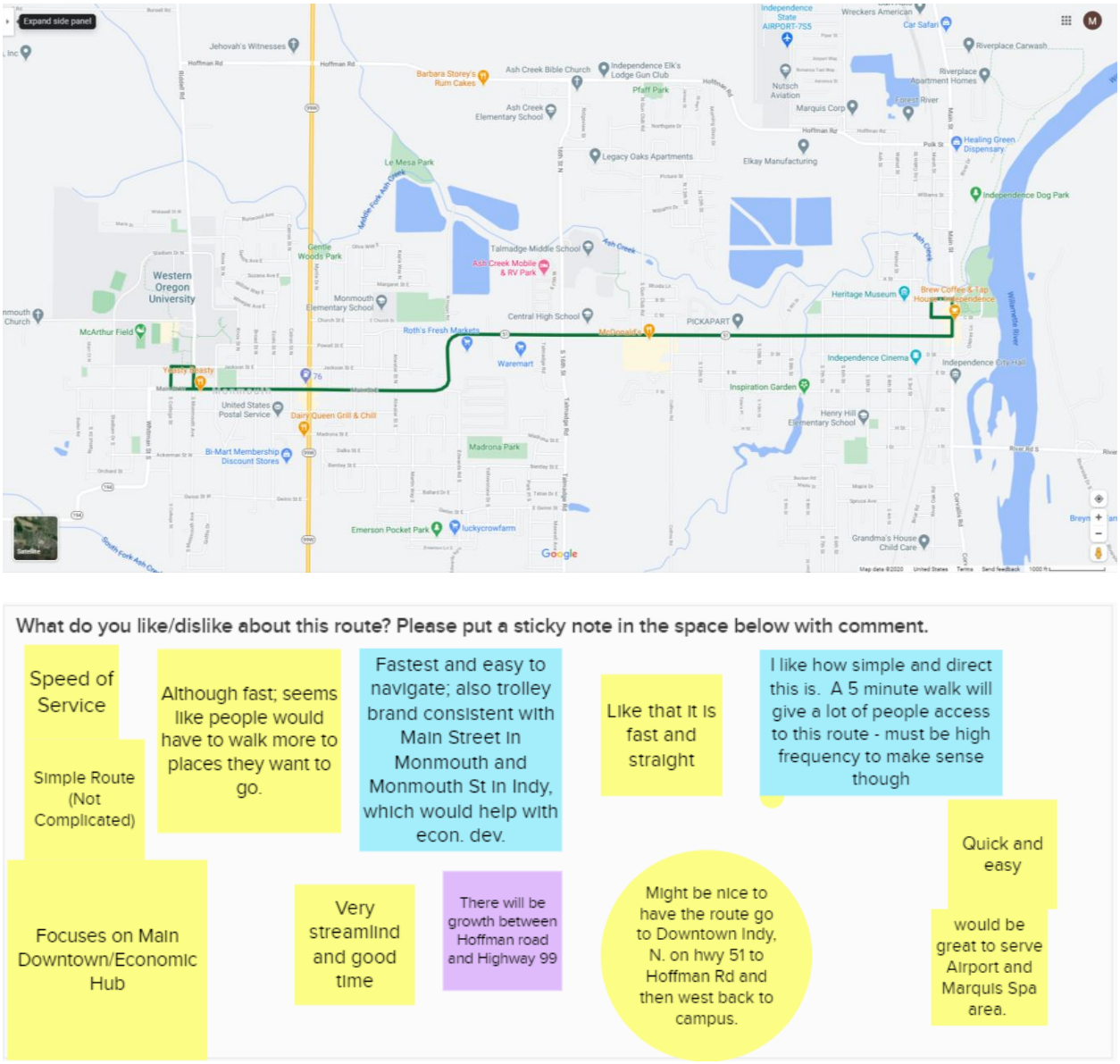
Source: Mural, Walker Consultants, 2020.

After respondents answered each of the four questions described above, they then commented on what they like/dislike about each of the three routes.

The following figure displays the written feedback received regarding Option A. Representative comments on Option A included:

- Respondents overall liked that the route is straight and fast.
- However, respondents expressed concern that people would have to walk further to a transit stop or from a transit stop to their destination.
- Respondents stated that the route does not serve employers in Independence, such as Marquis Corp and the Independence State Airport.
- Respondents liked that the route serves major business corridors: Main Street in Monmouth and Monmouth Street in Independence, which would promote economic development.

Option A: 3-mile route (2 vehicles = 15-minute service)

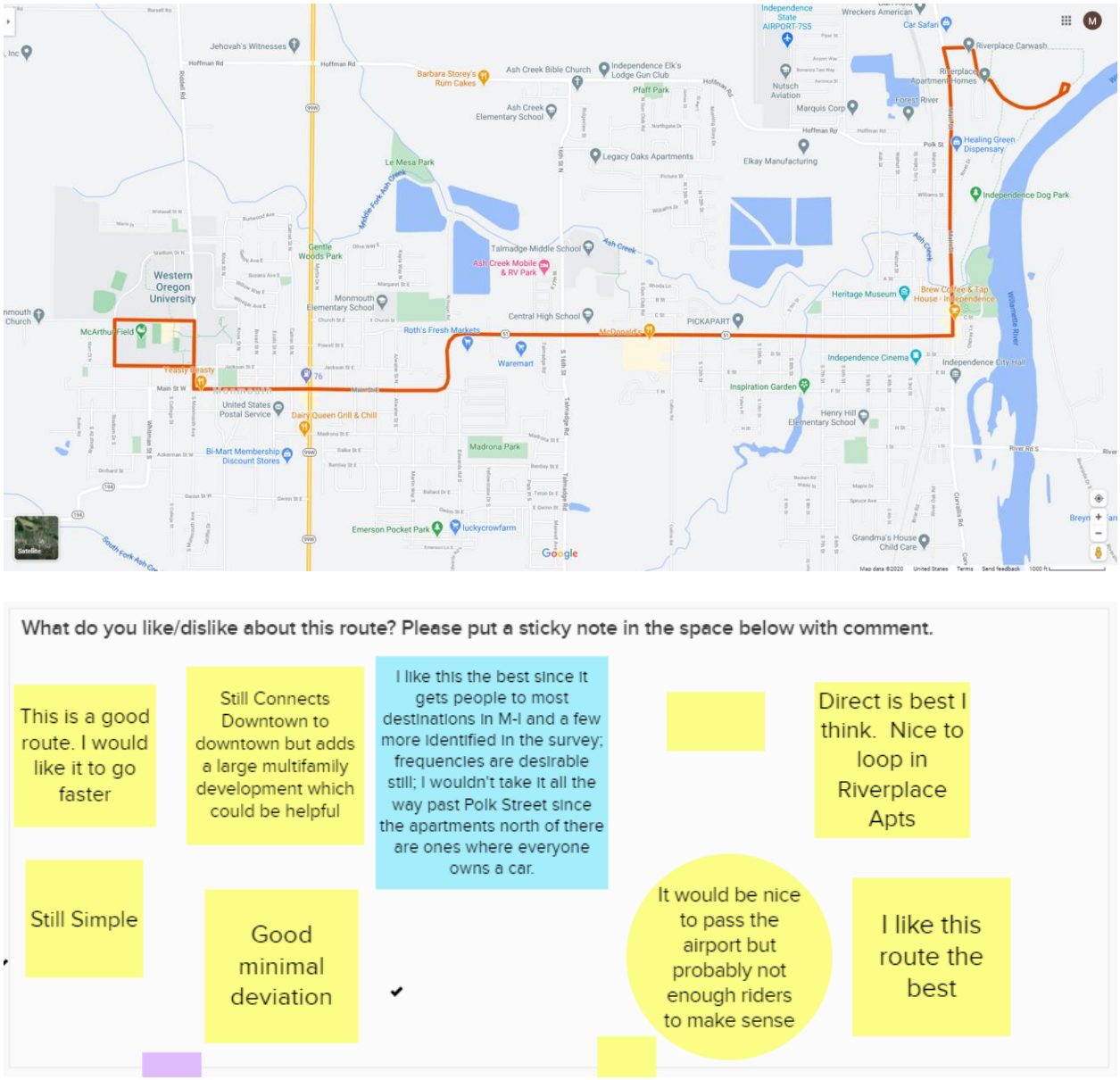


Source: Mural, Google Maps, Walker Consultants, 2020.

The following figure displays the written feedback received regarding Route Option B. Representative comments on Option B included:

- Respondents liked that Option B is still provides a relatively direct connection between Downtown Independence and Downtown Monmouth, with relatively few deviations.
- Respondents liked that Option B also serves Riverplace Apartment Homes in Independence.
- Respondents liked that the route serves Main Street in Monmouth and Monmouth Street in Independence, which would promote economic development.

Option B: 4.5-mile-route (2 vehicles = 20/25-minute service)



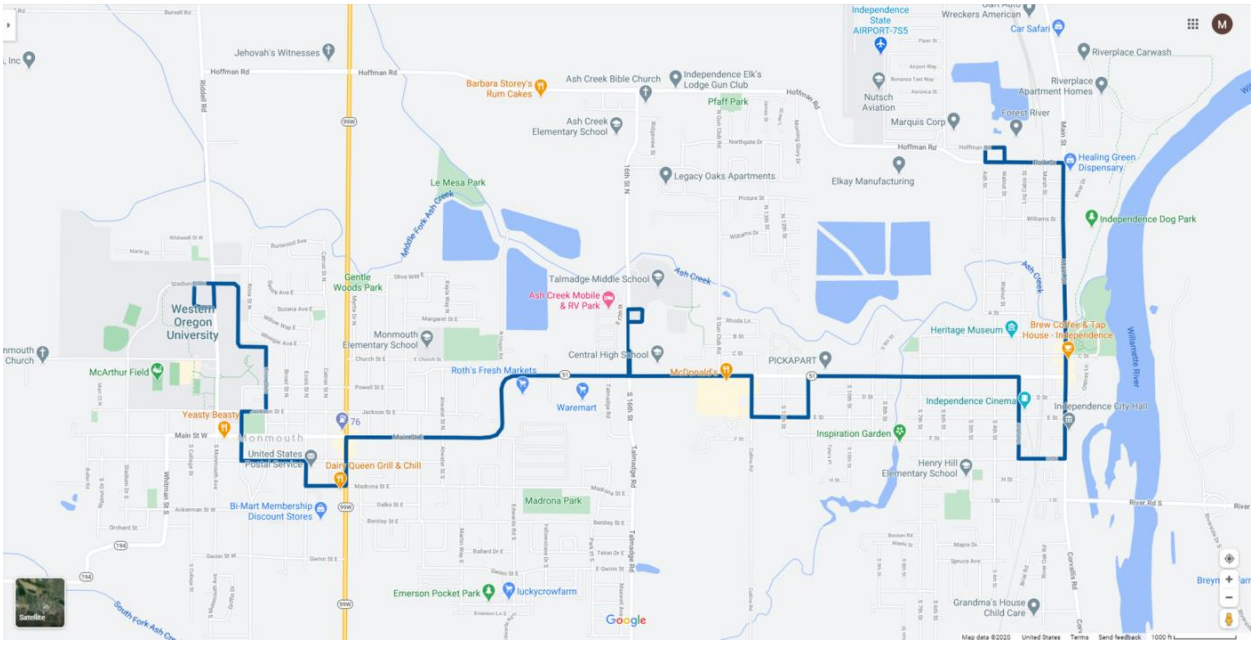
Source: Mural, Google Maps, Walker Consultants, 2020.

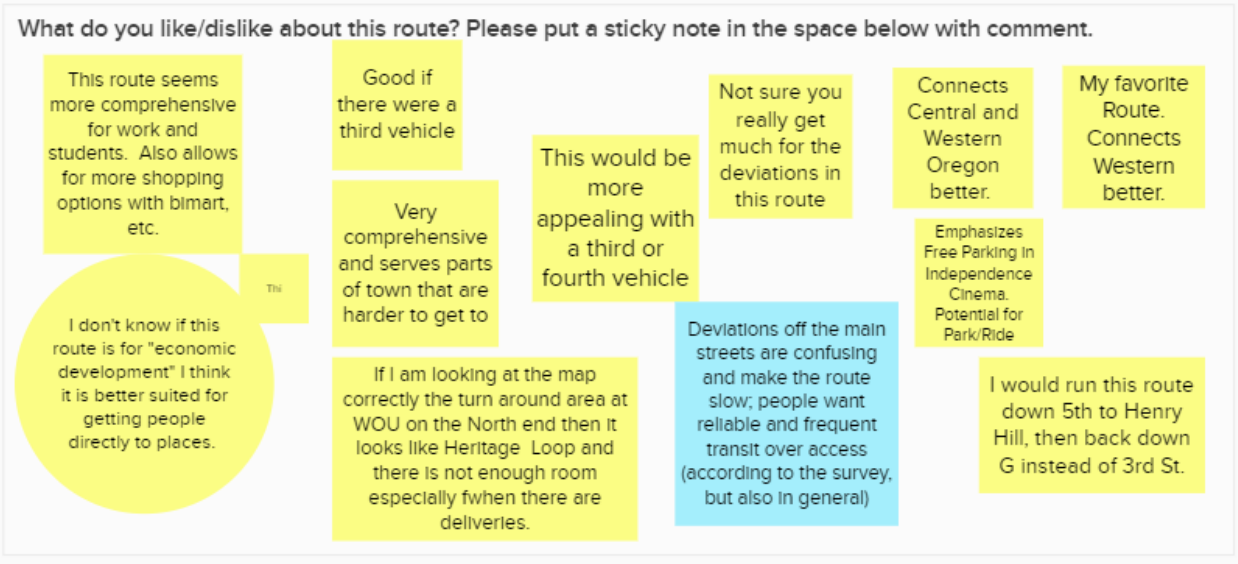
Error! Reference source not found. The following figure displays the written feedback received regarding Option C. Representative comments regarding Option C included:

- Respondents thought the route was more comprehensive than Option A and Option B, given that there are more deviations than Route A and B.
- However, there were concerns about the number of deviations on the route, and the resulting slower speed of the trolley. Respondents commented that there would likely be a need for a third or fourth vehicle to make the route viable.
- Respondents commented that Option C connects Western Oregon University better than Route A and Route B. However, given the right of way available and current traffic patterns, concerns were expressed

regarding the ability of the trolley to make the proposed loop within the Western Oregon University campus.

Option C: 6-mil Route (2 vehicles = 30-minute Service)





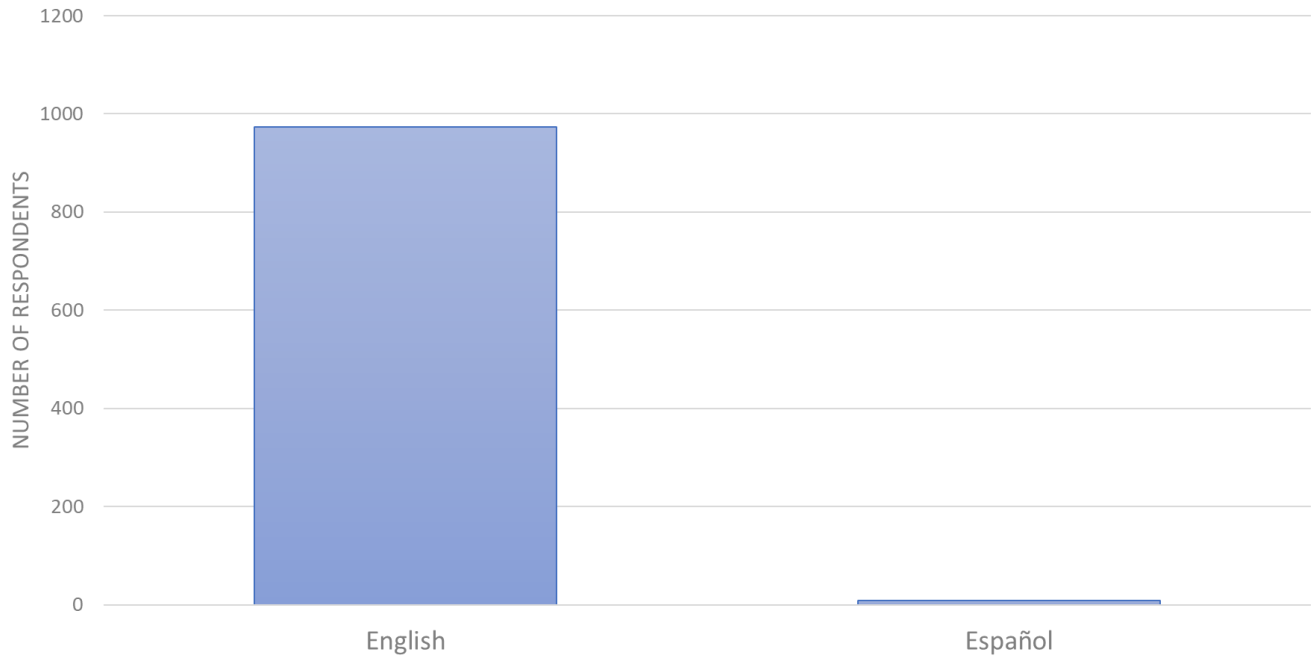
Source: Mural, Google Maps, Walker Consultants, 2020.

Appendix D– Community Survey Responses

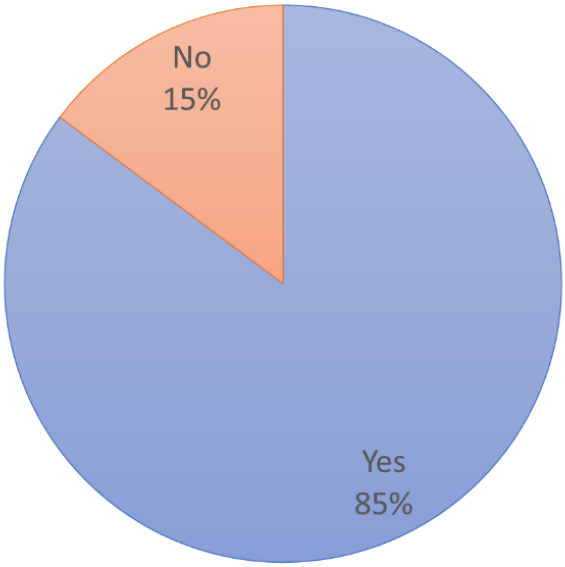
Appendix D – Community Survey Responses

This appendix contains figures prepared by Walker Consultants based on survey responses obtained from the Community Mobility Survey Results – Survey Period 10/15-11/22/2020 issued through Survey Monkey.

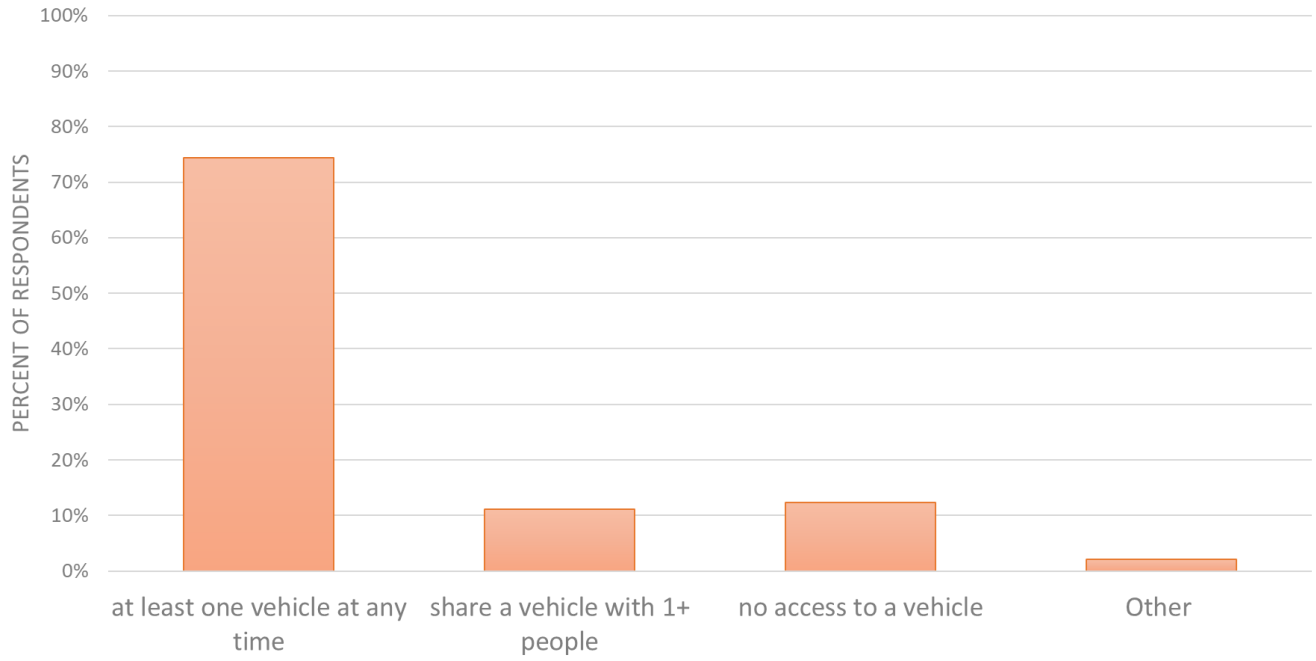
Q1 Selected Language for Survey



Q2 Do you currently have a driver's license?

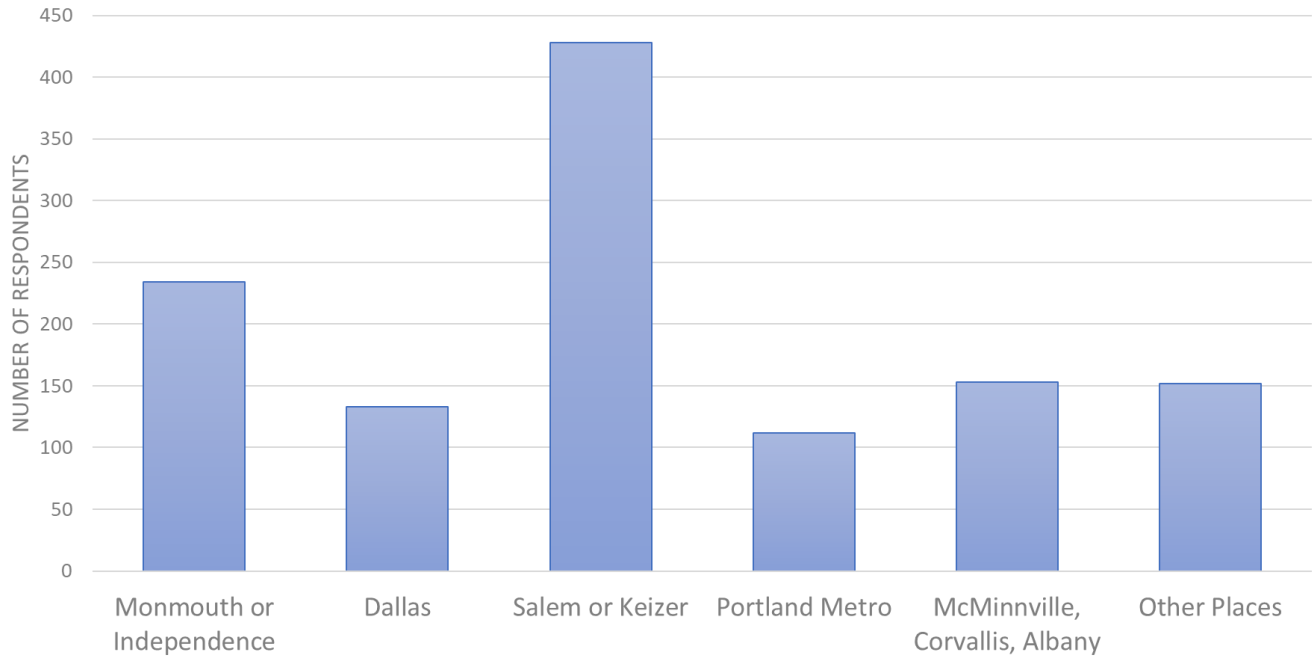


Q3 Which of the following best describes your current access to a motorized vehicle?

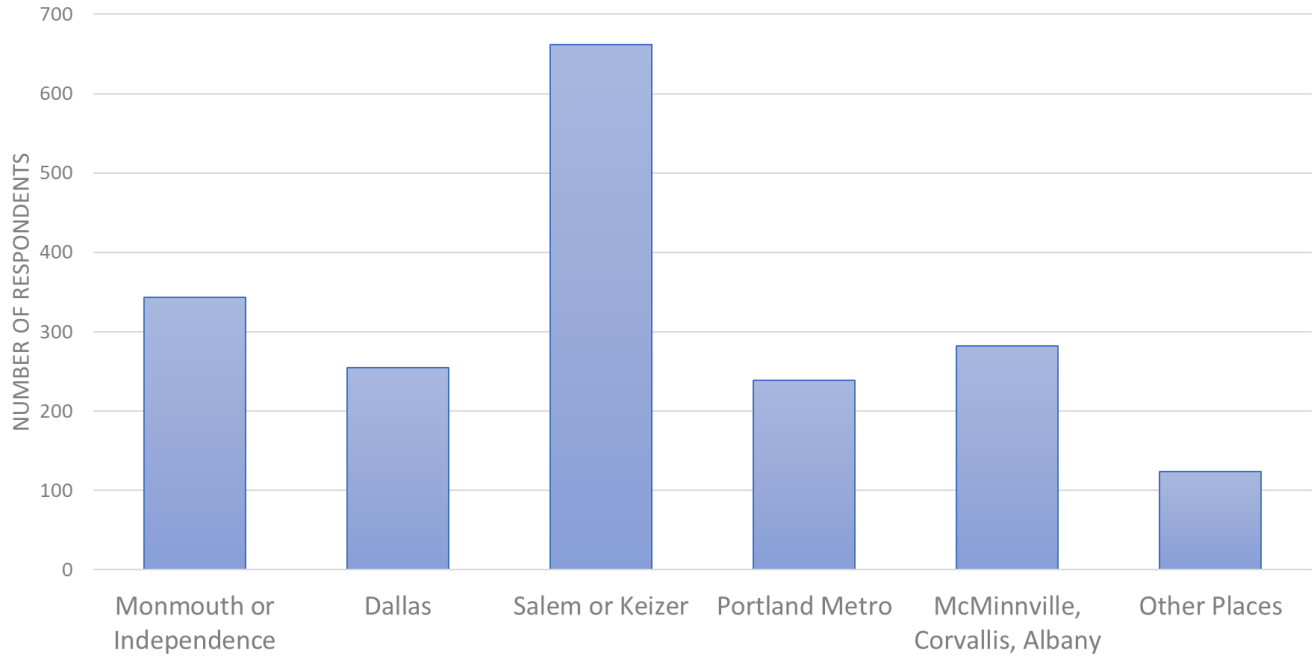


Q4 Before the COVID-19 pandemic, where did you use to go for the following purposes or destinations?

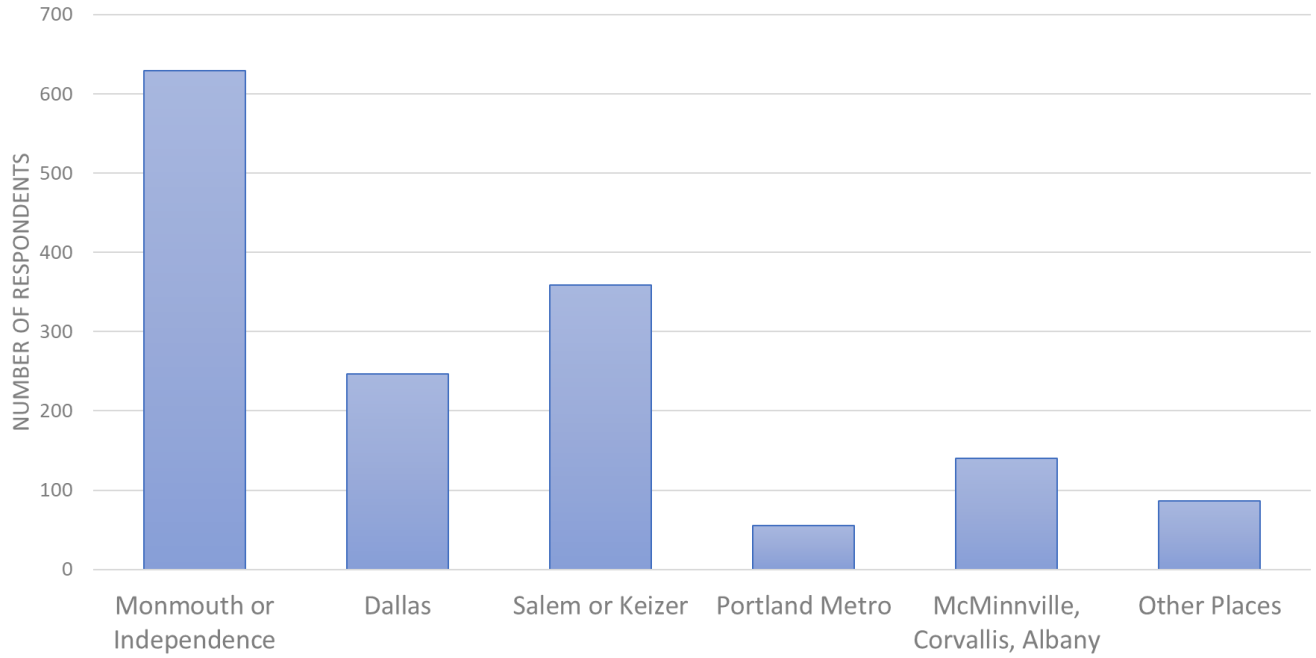
Healthcare or Doctor



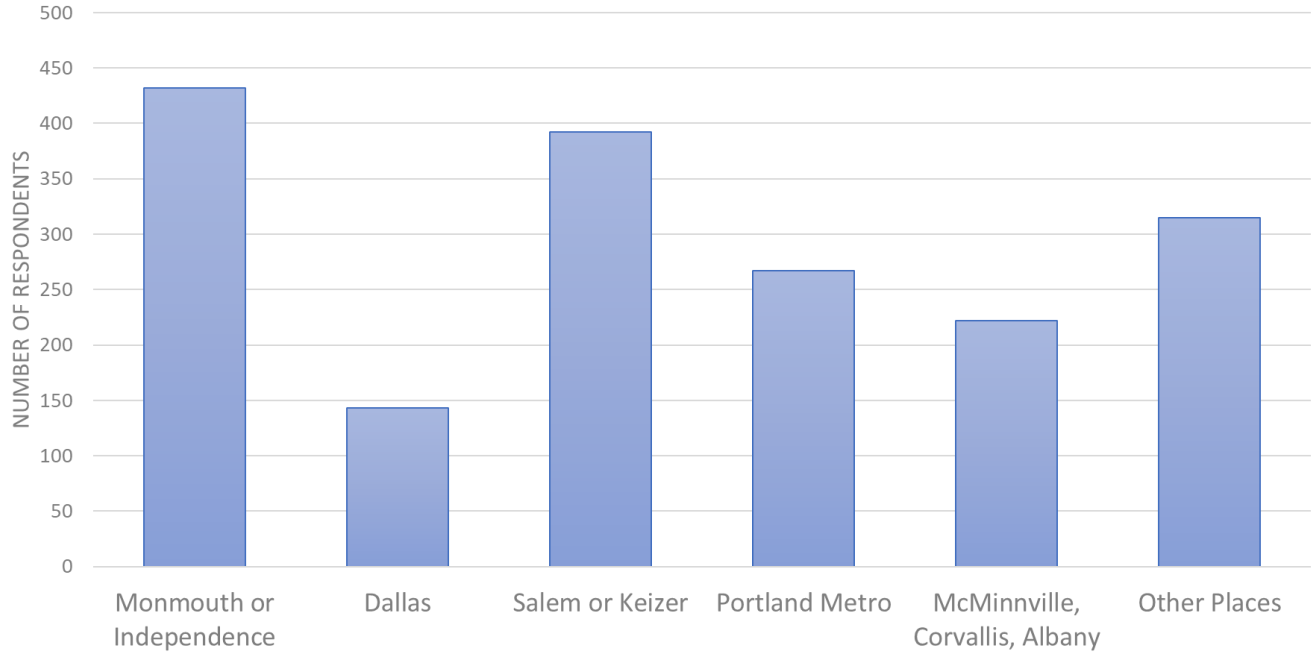
Retail Shopping



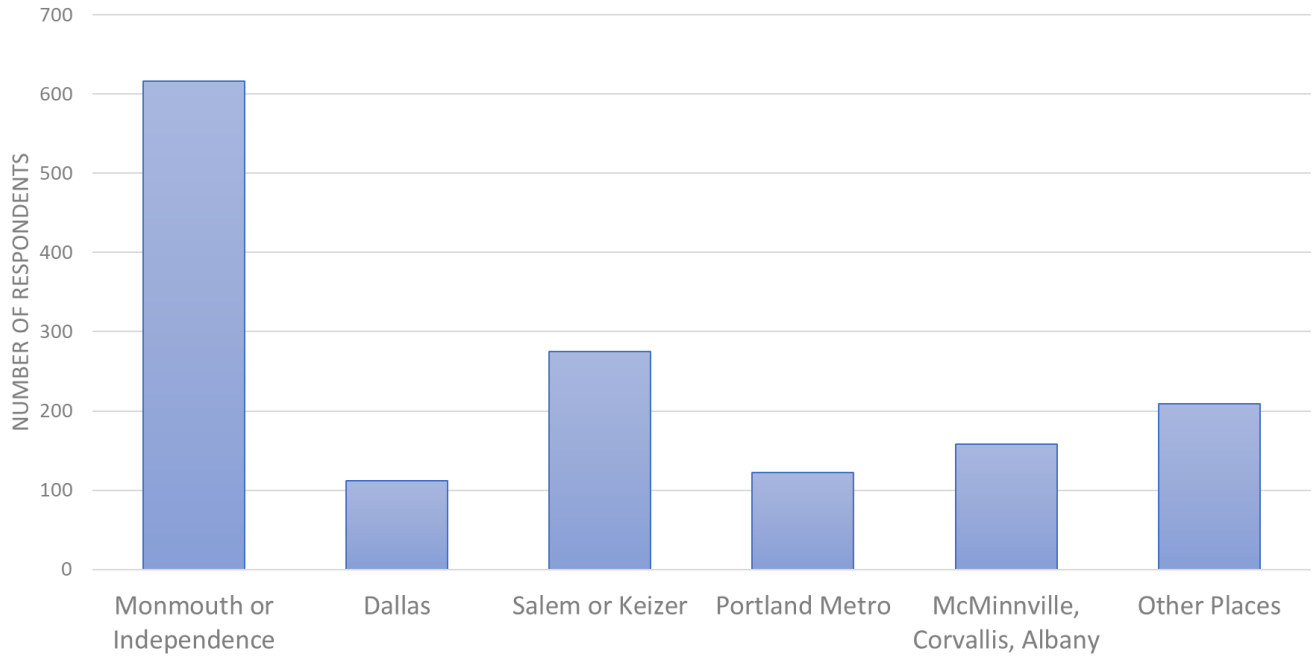
Grocery Shopping



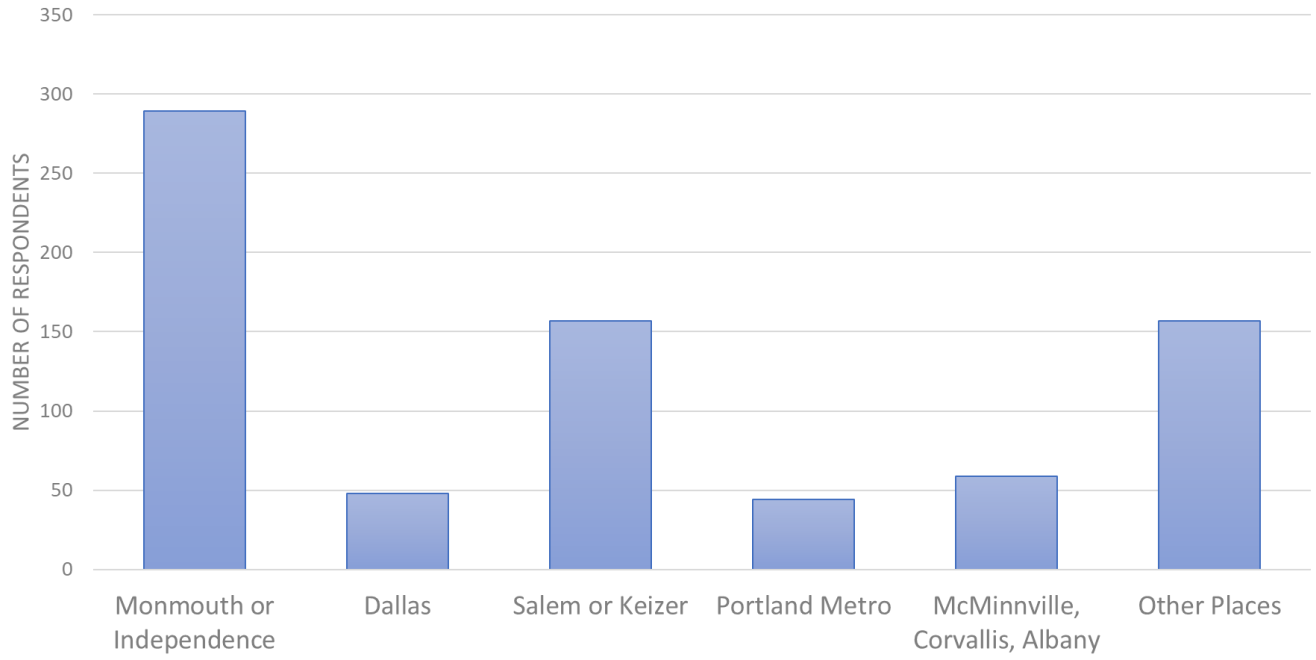
Social/Family Engagements



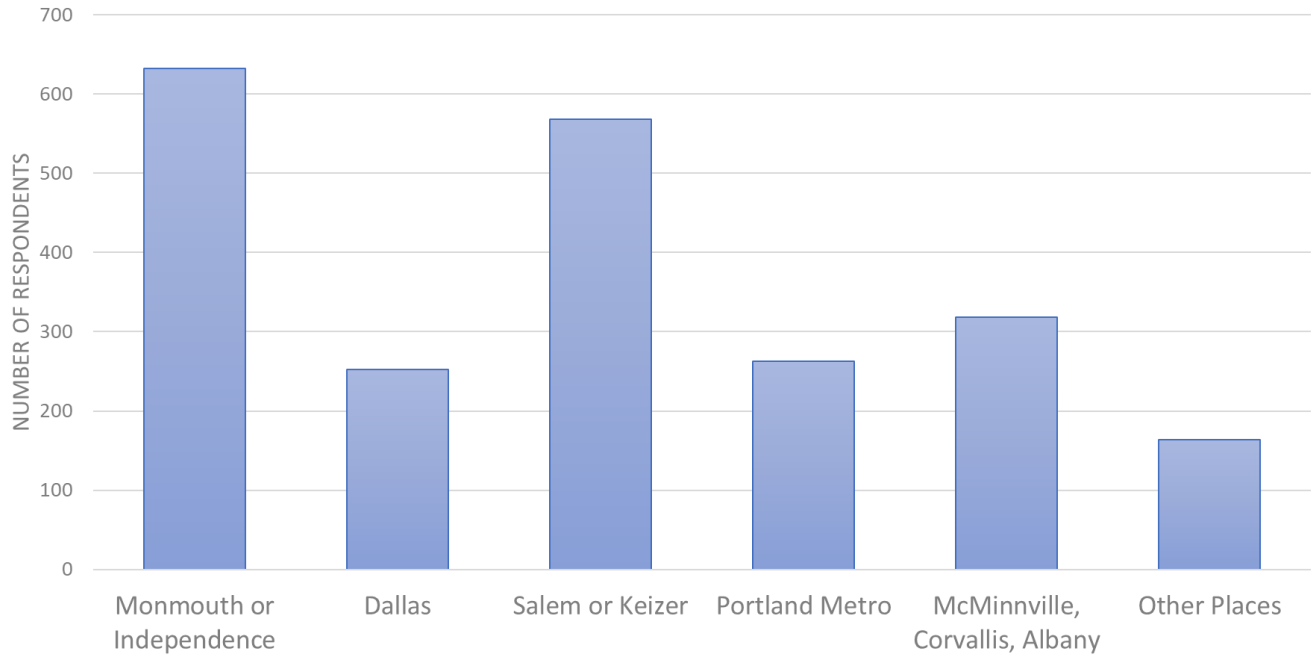
Recreation/Exercise



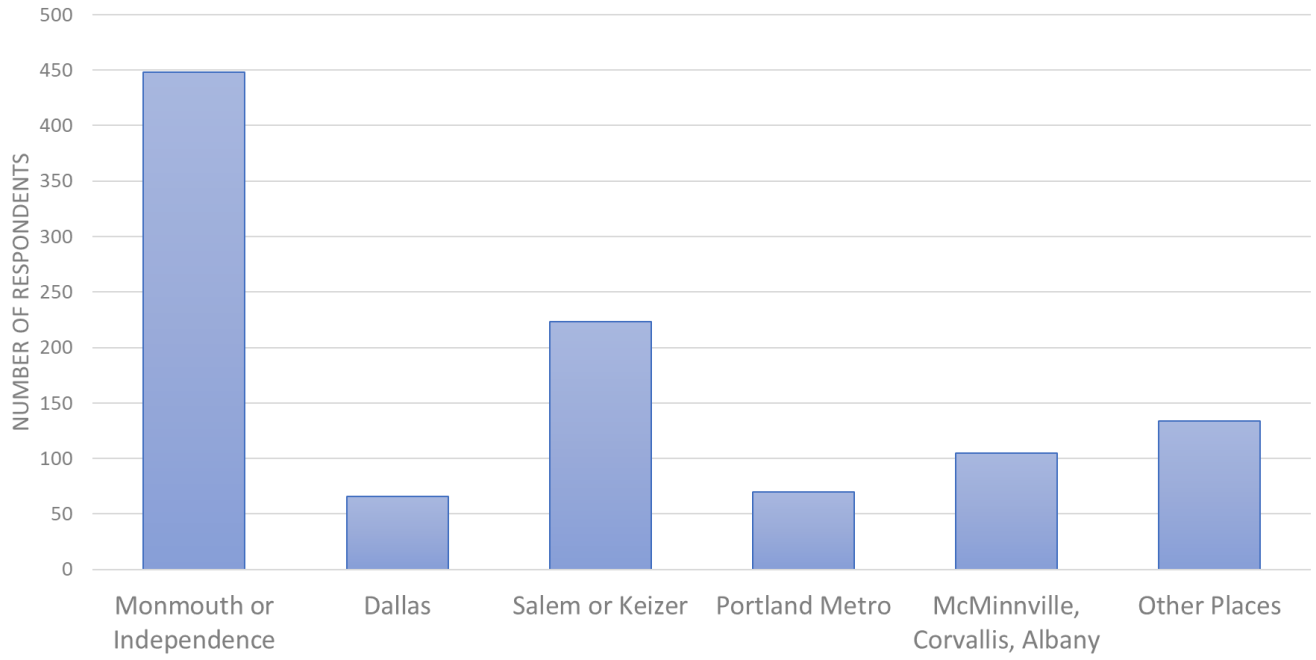
Church or Charity



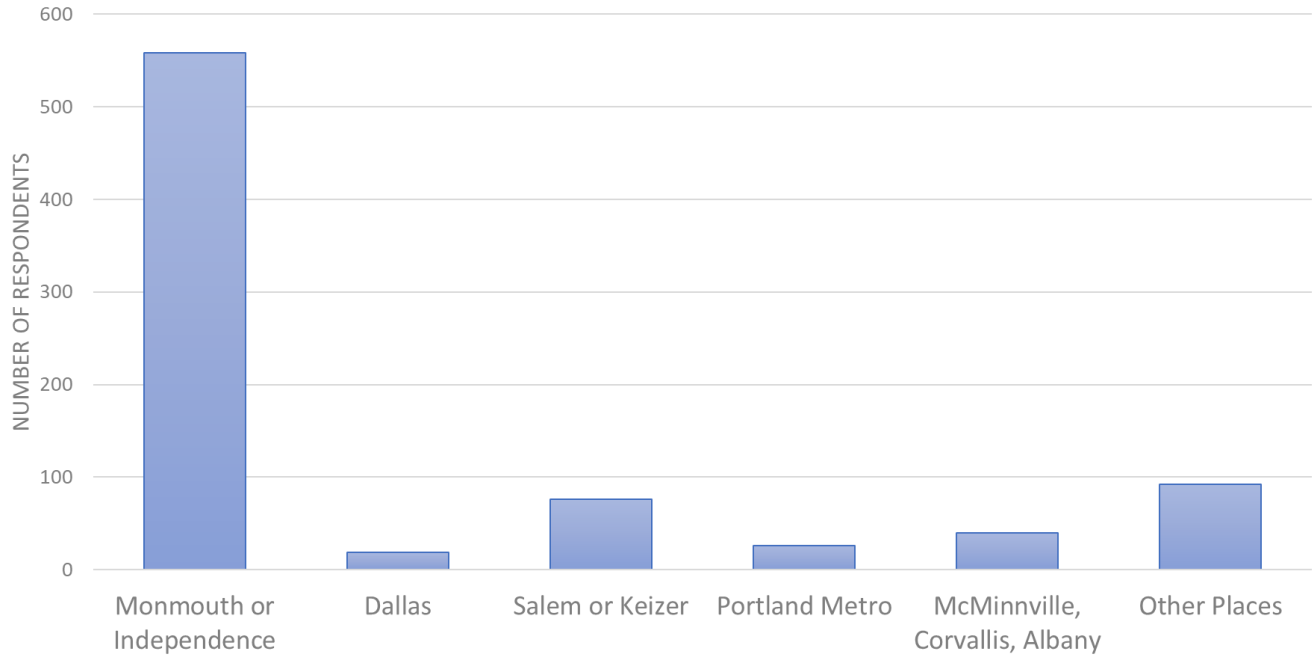
Restaurants, Bars



Work

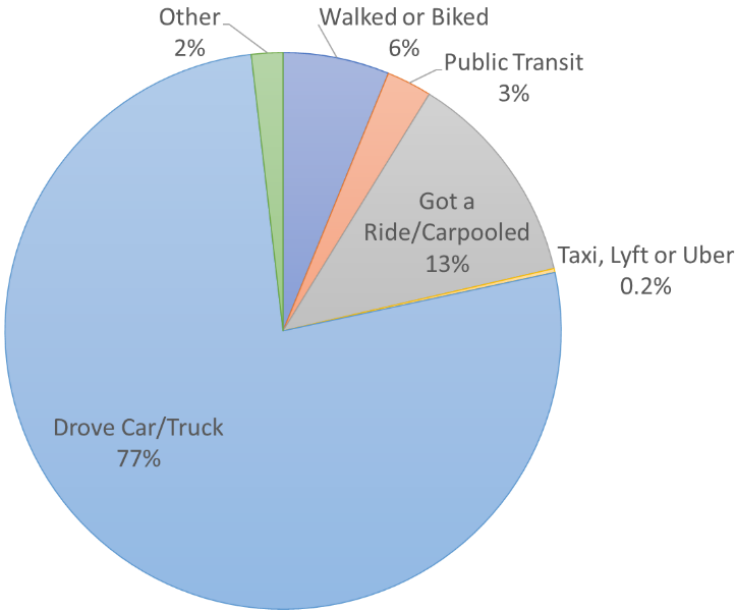


School

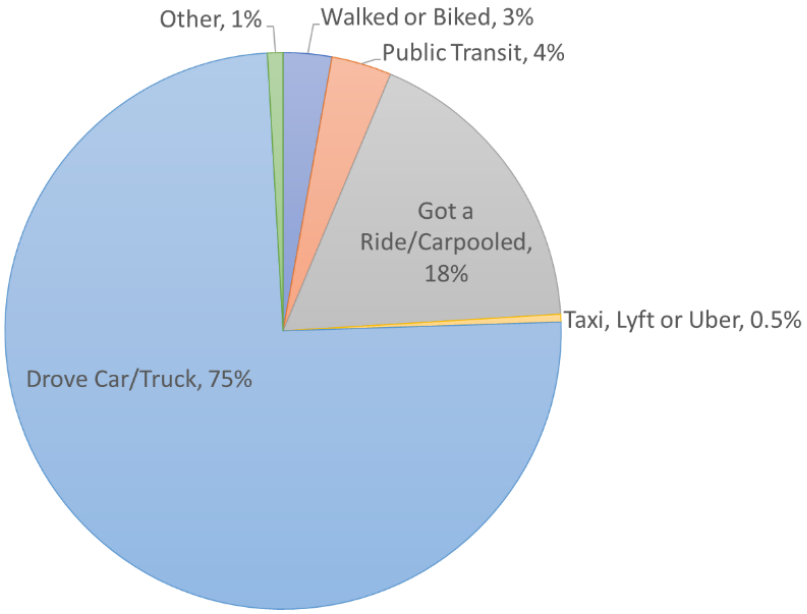

600
500
400
300
200
100
0
NUMBER OF RESPONDENTS
Monmouth or Independence
Dallas
Salem or Keizer
Portland Metro
McMinnville, Corvallis, Albany
Other Places

Q5 What mode of transportation do you typically use to travel to the following destinations or purposes?

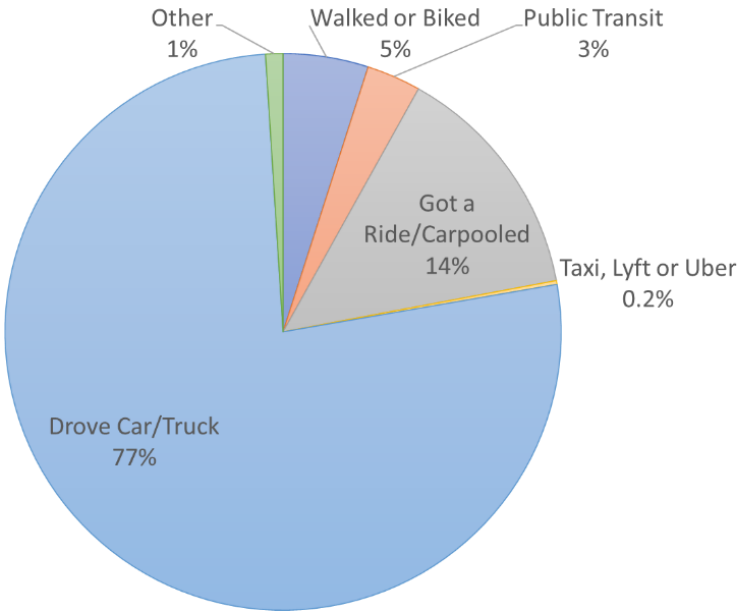
Healthcare or Doctor



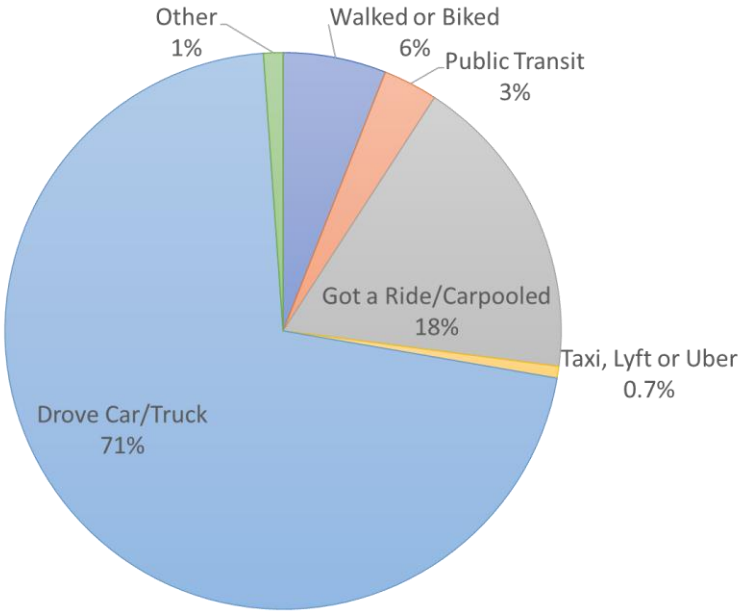
Retail Shopping



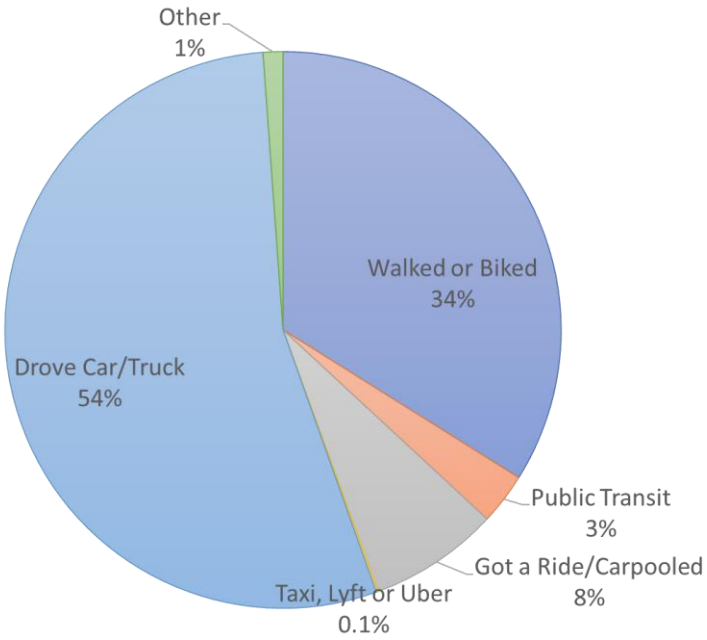
Grocery Shopping



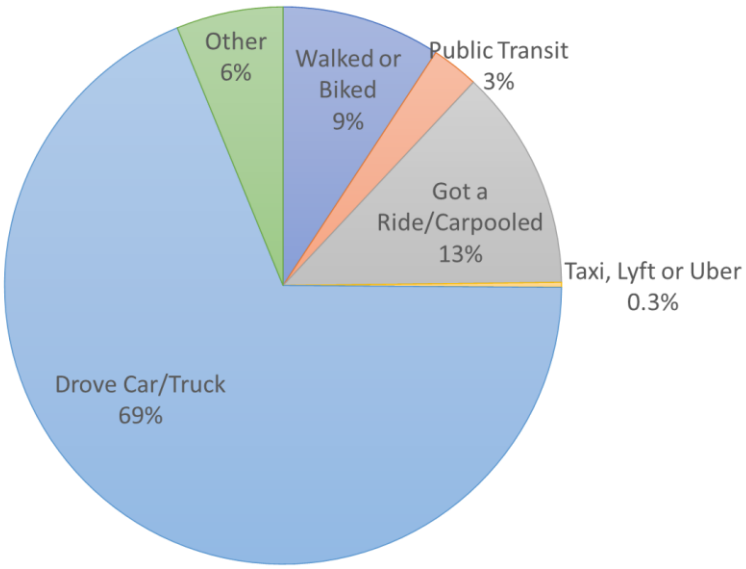
Social/Family Engagements



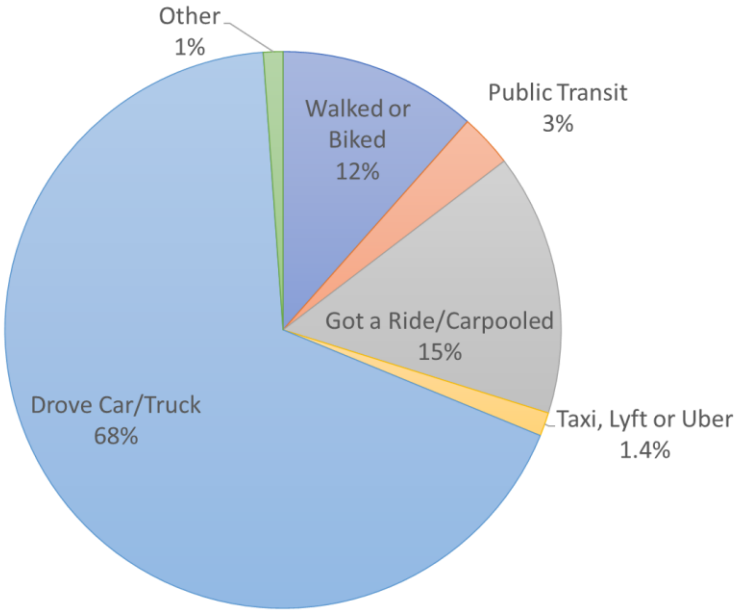
Recreation, Exercise



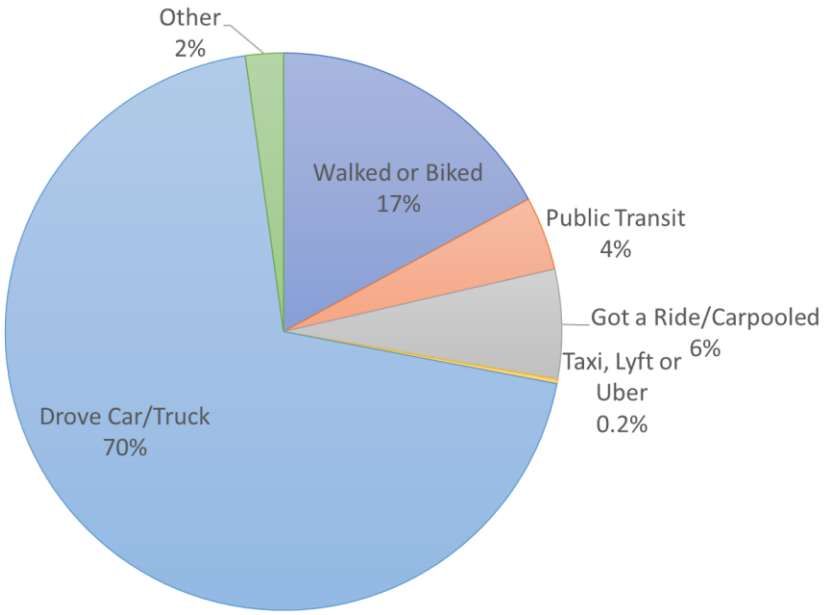
Church or Charity



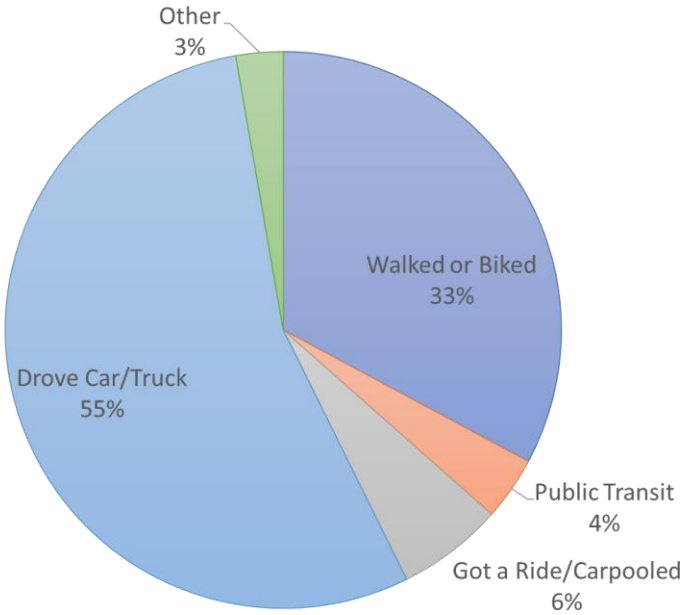
Restaurants, Bars



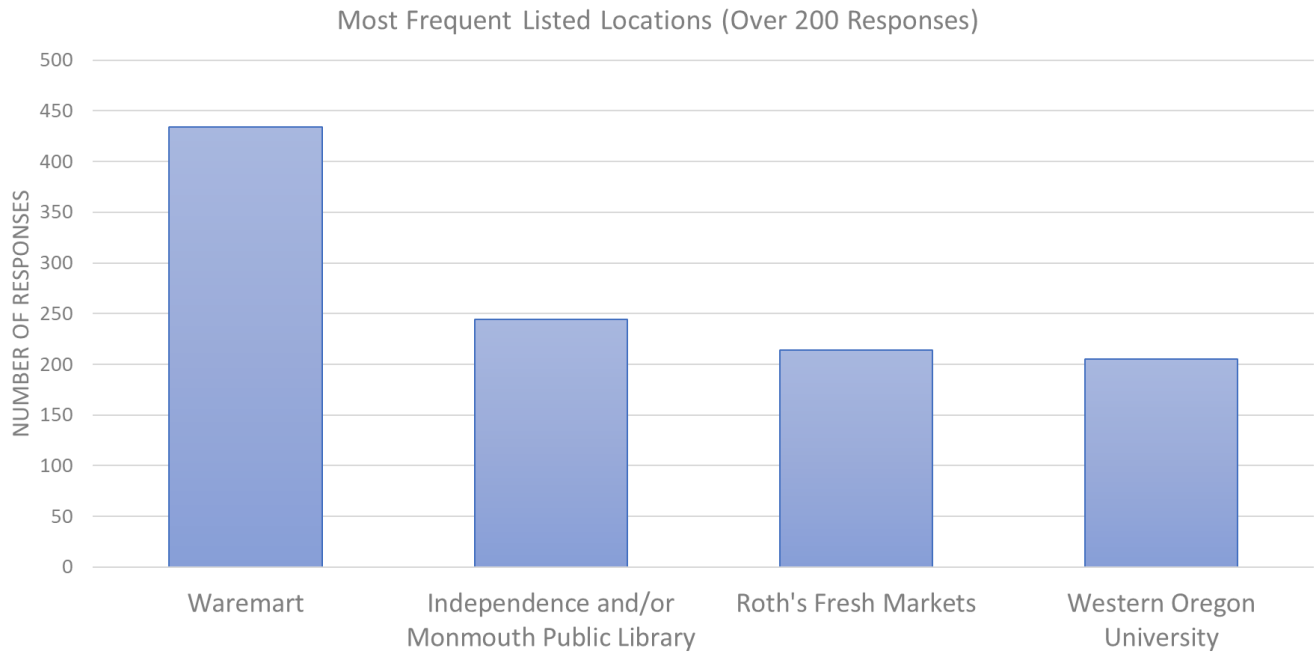
Work



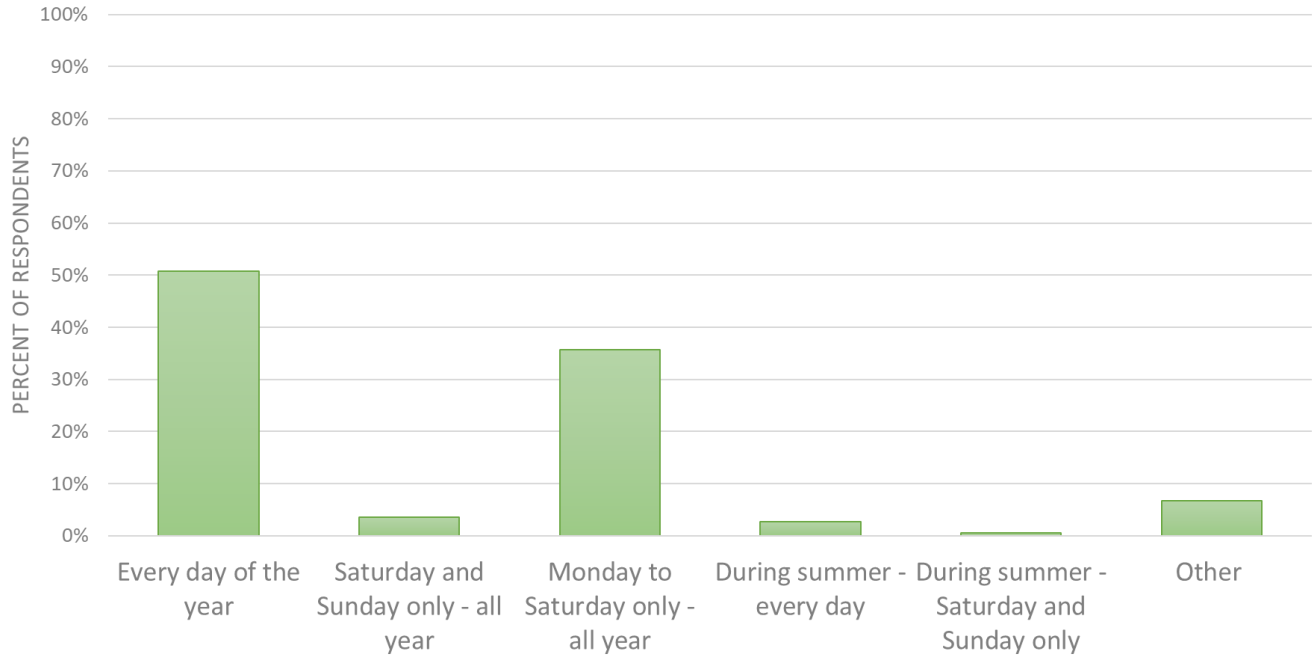
School


Other
3%
Walked or Biked
33%
Drove Car/Truck
55%
Public Transit
4%
Got a Ride/Carpooled
6%

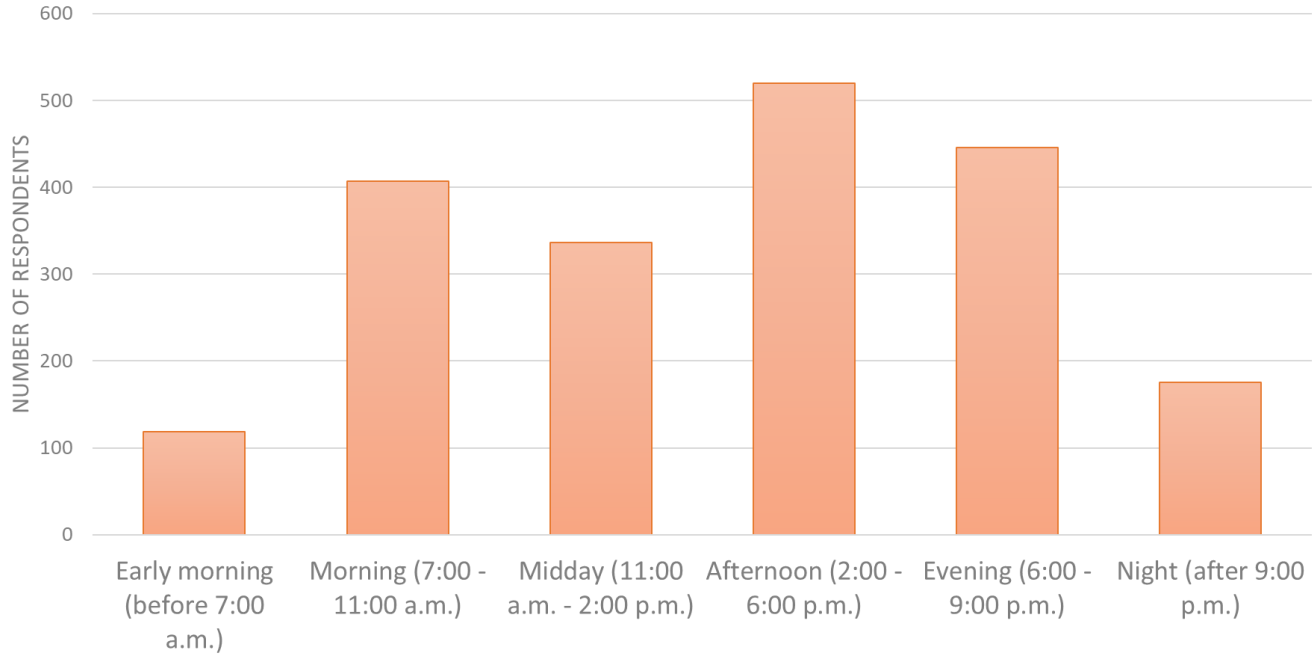
Q6 Please list three locations in the Cities of Independence and Monmouth that you would like to see served by a future transit service



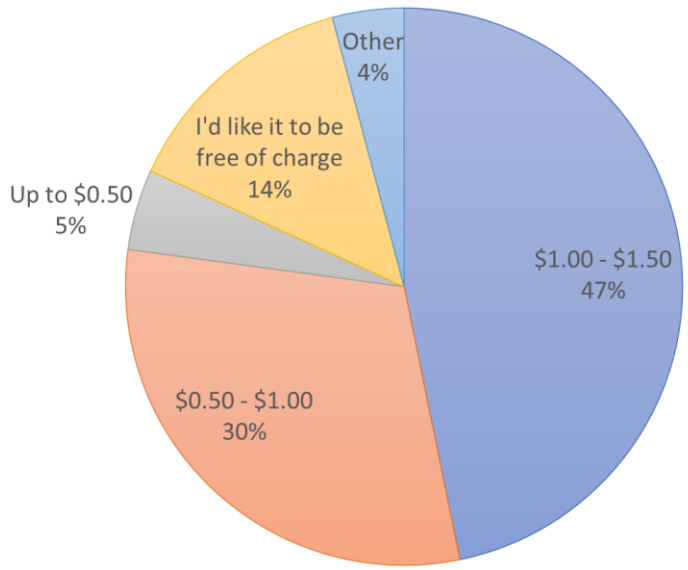
Q7 When should the transit service operate?



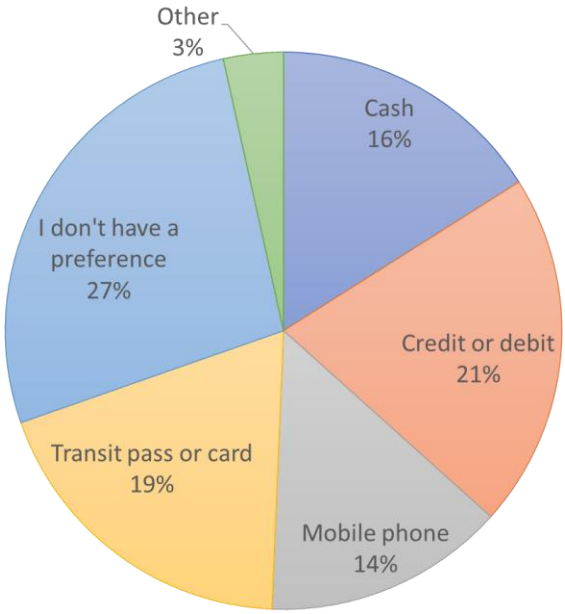
Q8 At what time of day would the transit service be most useful to you (make at least two choices)?



Q9 How much would you be willing to pay for a single ride?

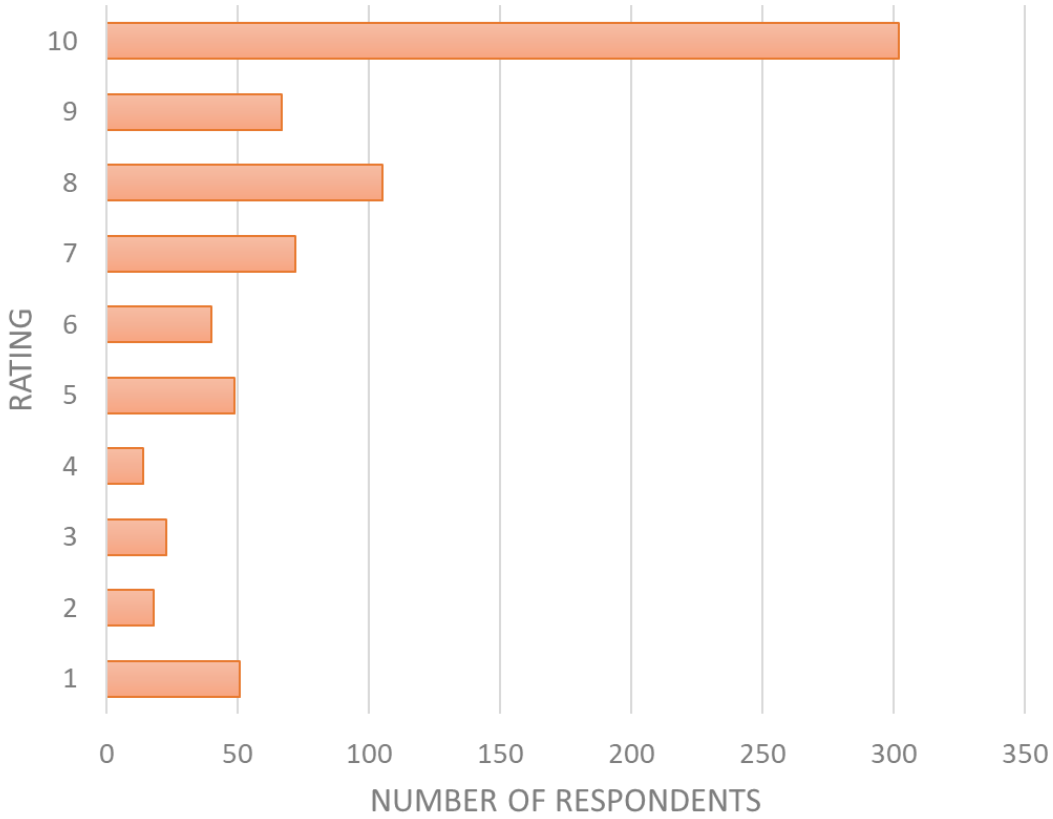


Q 10 How would you prefer to pay the fare?



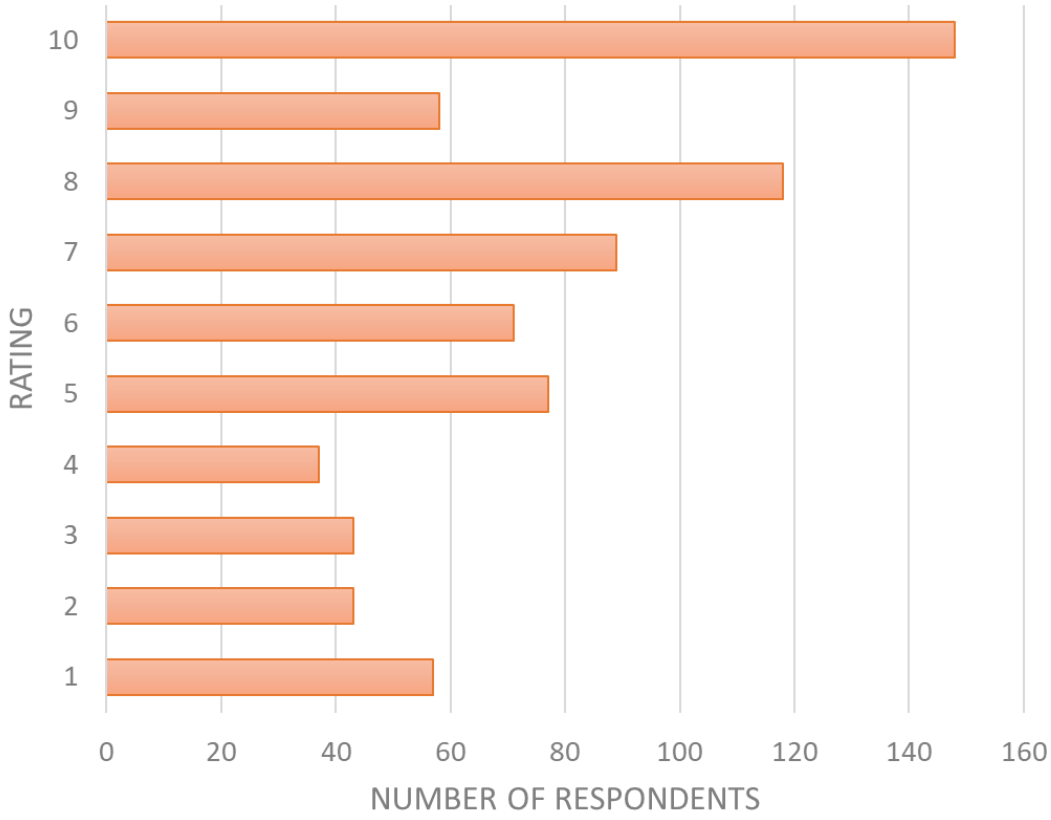
Q11 Please rate from 1-10 your interest in riding a trolley vehicle like the image below (with 1 representing the least interest and 10 the most interest)

Trolley Vehicle



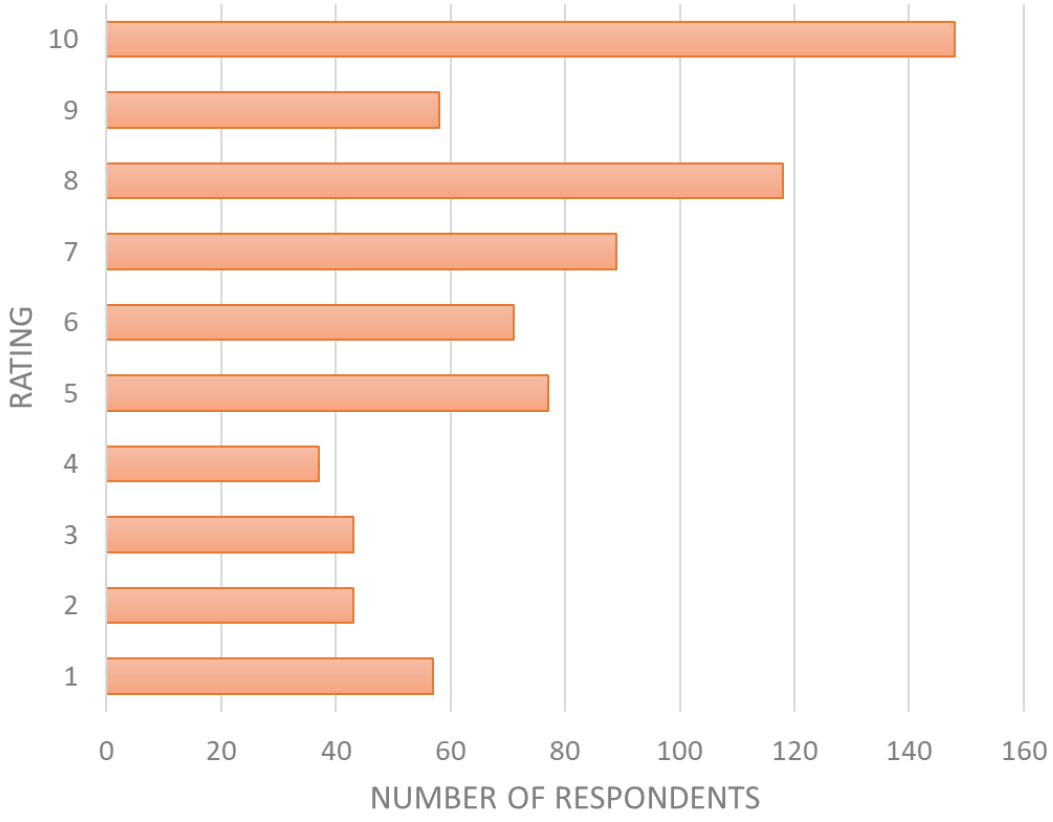
Average Rating: 7.6

Transit Bus



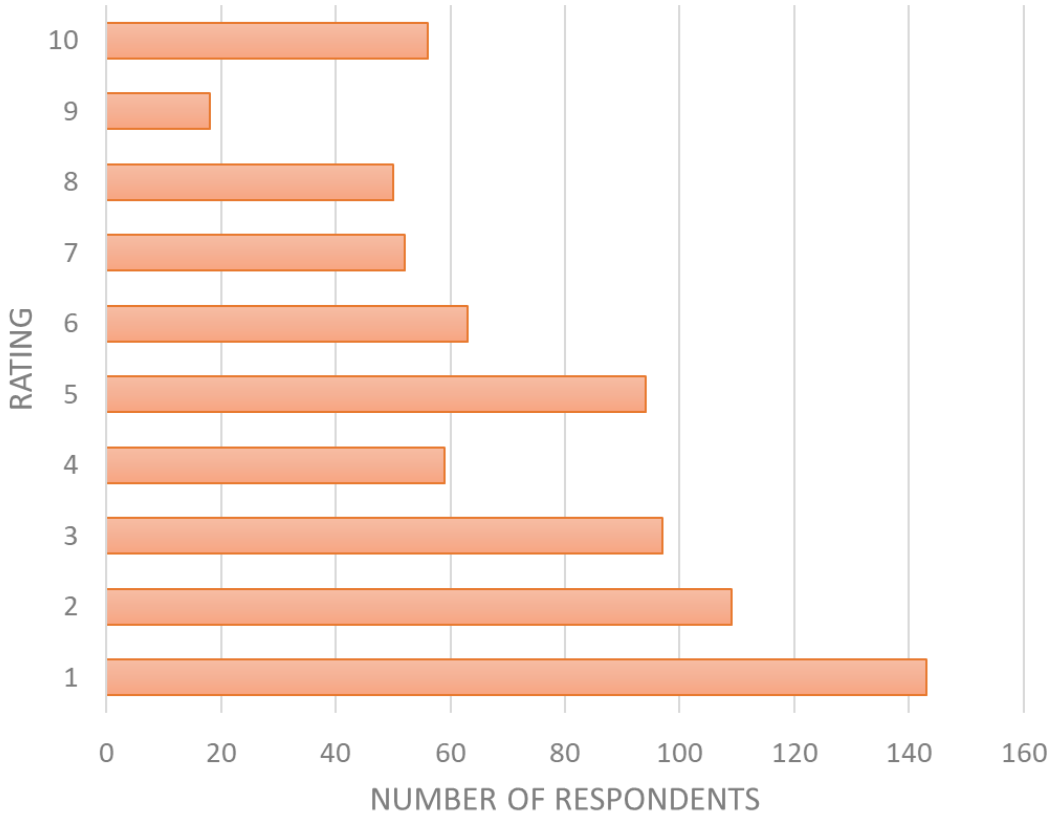
Average Rating: 6.5

Shuttle Bus



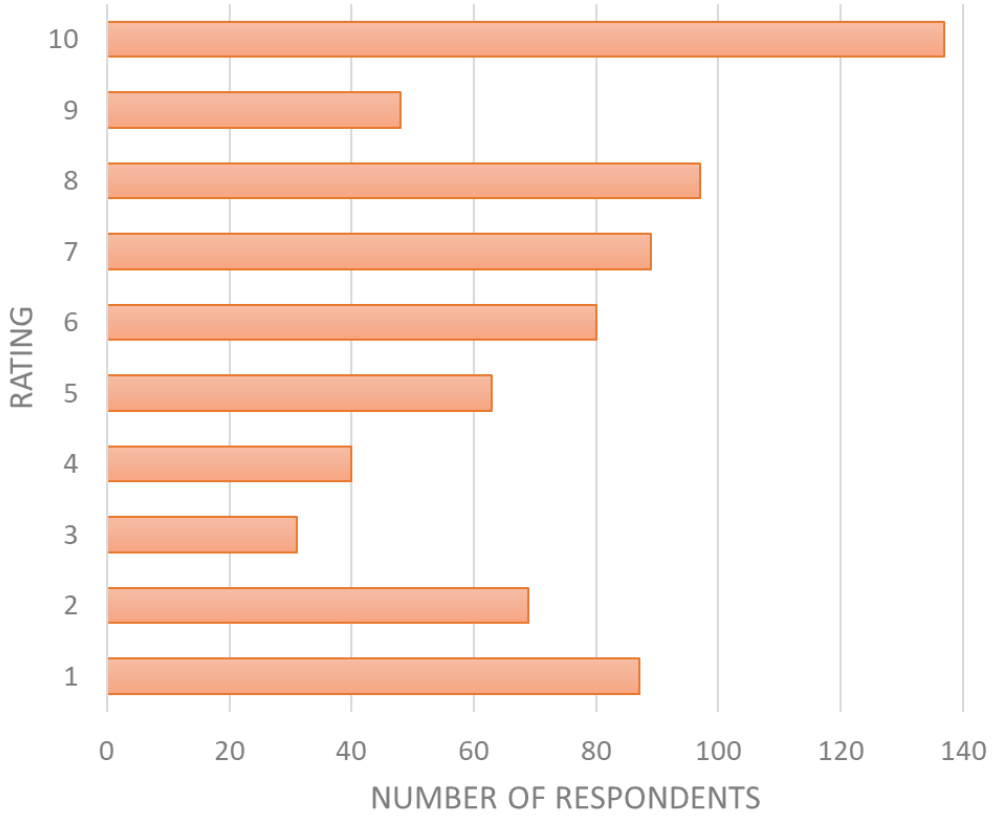
Average Rating: 5.7

Passenger Van



Average Rating: 4.3

Electric Vehicle

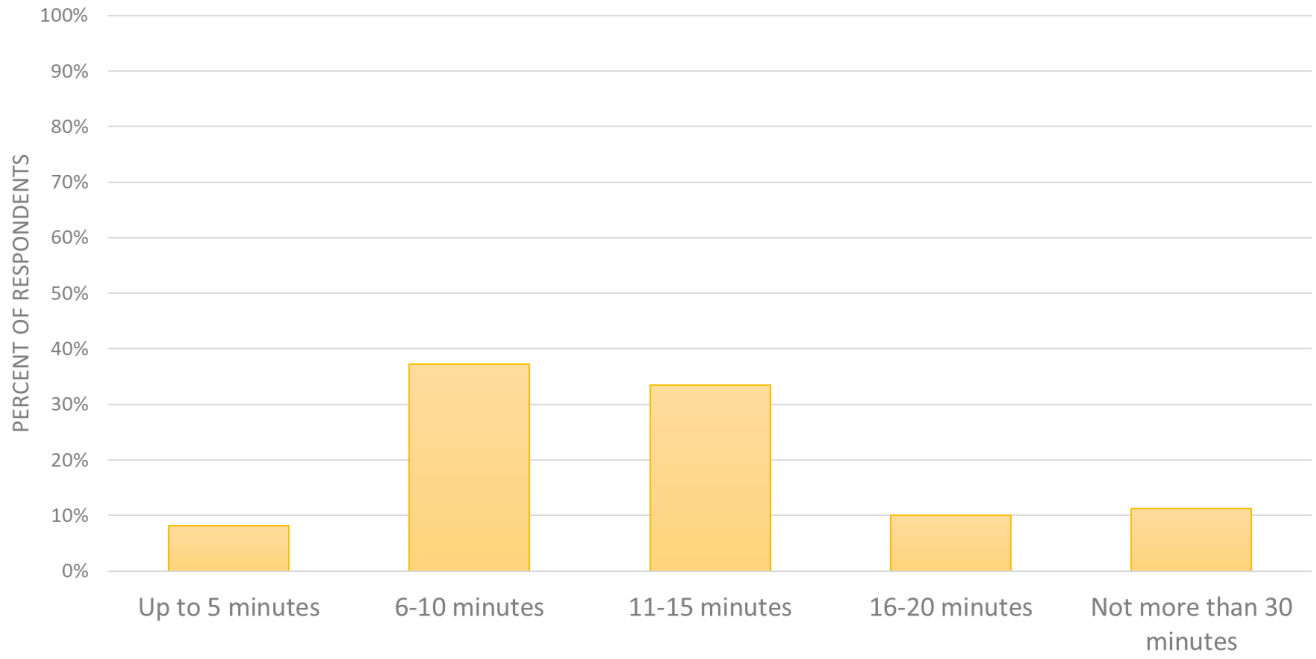


Average Rating: 6.0

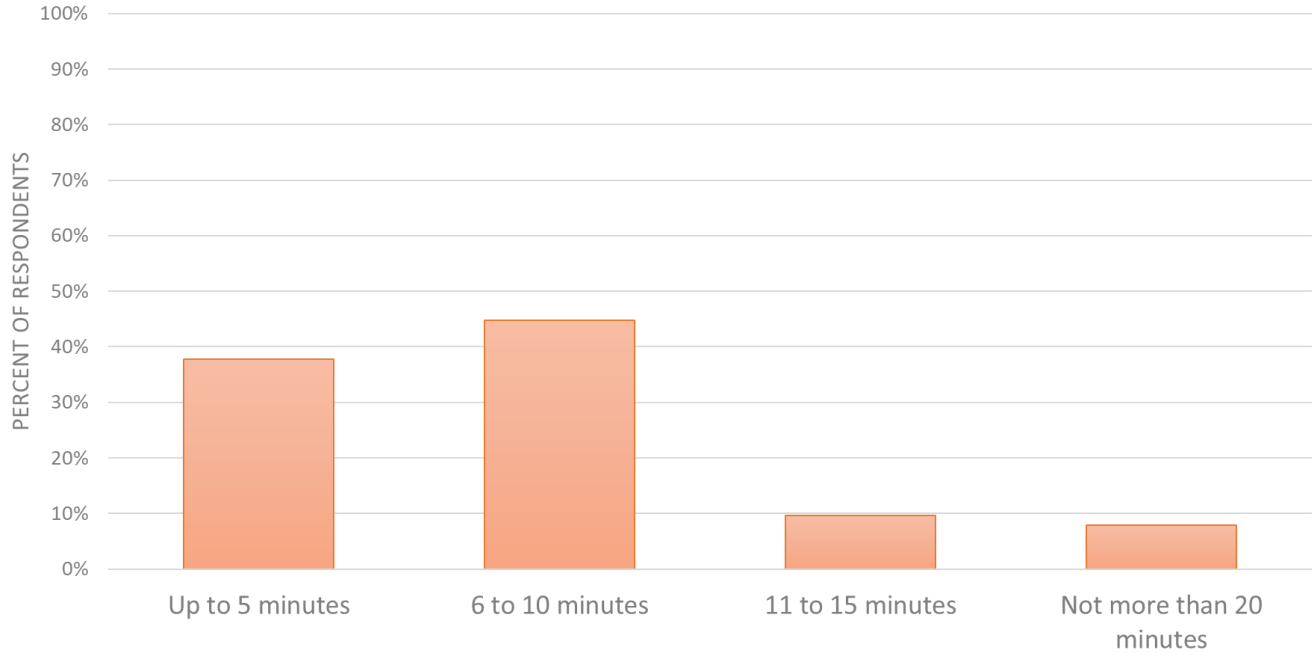
Q16 From the descriptions below, which type of service would be the most attractive to you?

- *Fixed Route*: a service that travels along Monmouth and Main Street, on a fixed route with a predetermined schedule and designated stops, without making deviations.
  - **36%**
- *Flex Route*: a service that has a designated route and stops along Monmouth and Main Street, but can make a few deviations that are several blocks off the main route.
  - **43%**
- *On Demand*: a service where you can book a trip in advance or on demand, that takes you from point A to point B, but is a shared ride that makes many deviations to serve other passengers.
  - **16%**
- *Other* combination or type of service
  - **5%**

Q17 How long would you be willing to wait for transit service, either fixed, flex or on demand?

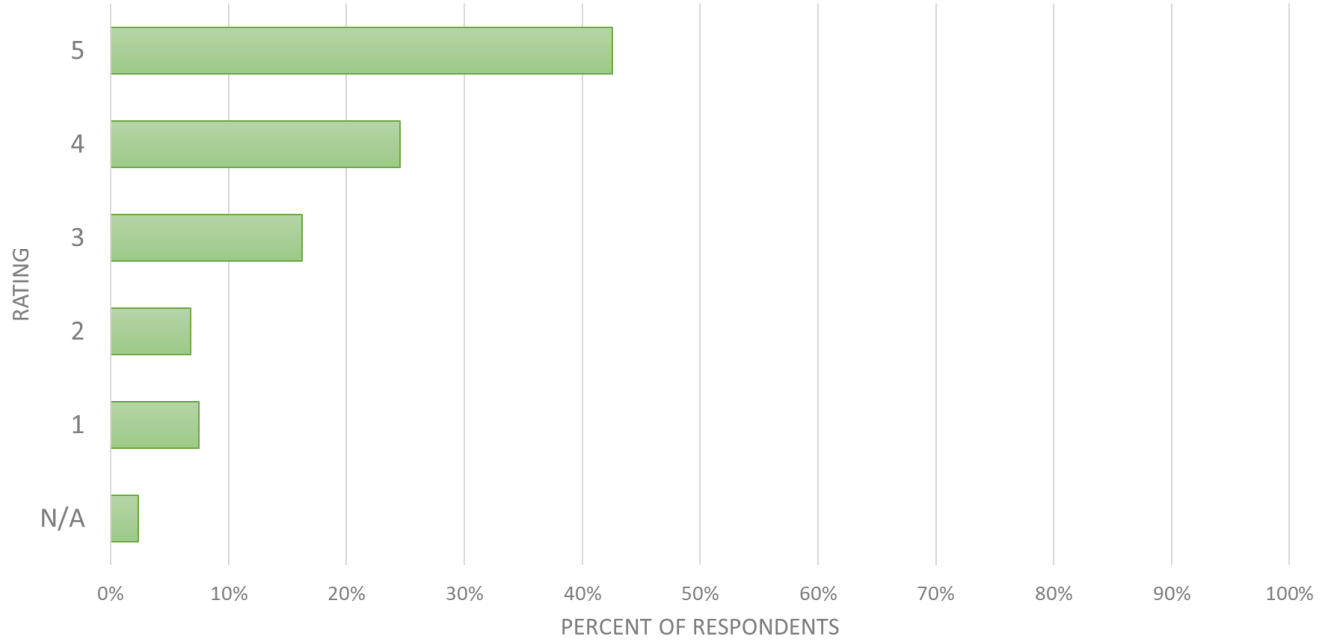


Q18 How long would you be willing to walk to a transit stop, if it reduced your waiting time?



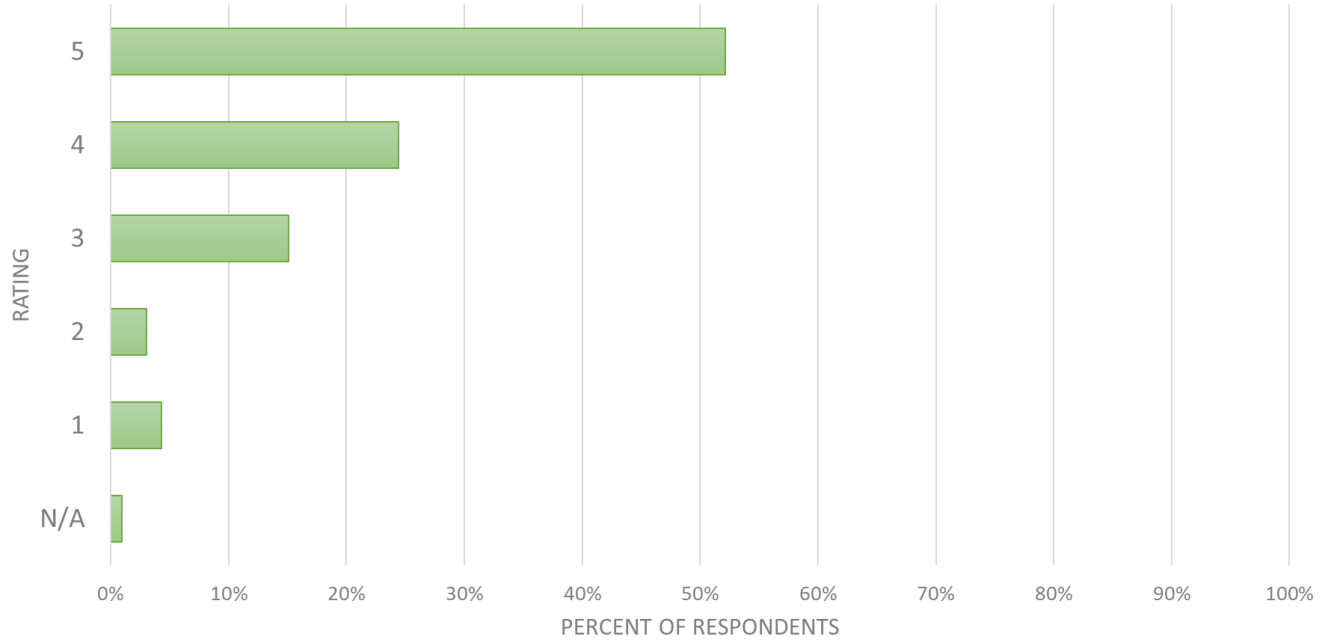
Q19 How important would the following factors be in your decision to use the new transit service? (with 1 being not important and 5 being very important)?

Availability of sidewalks and street crossings to access bus stops



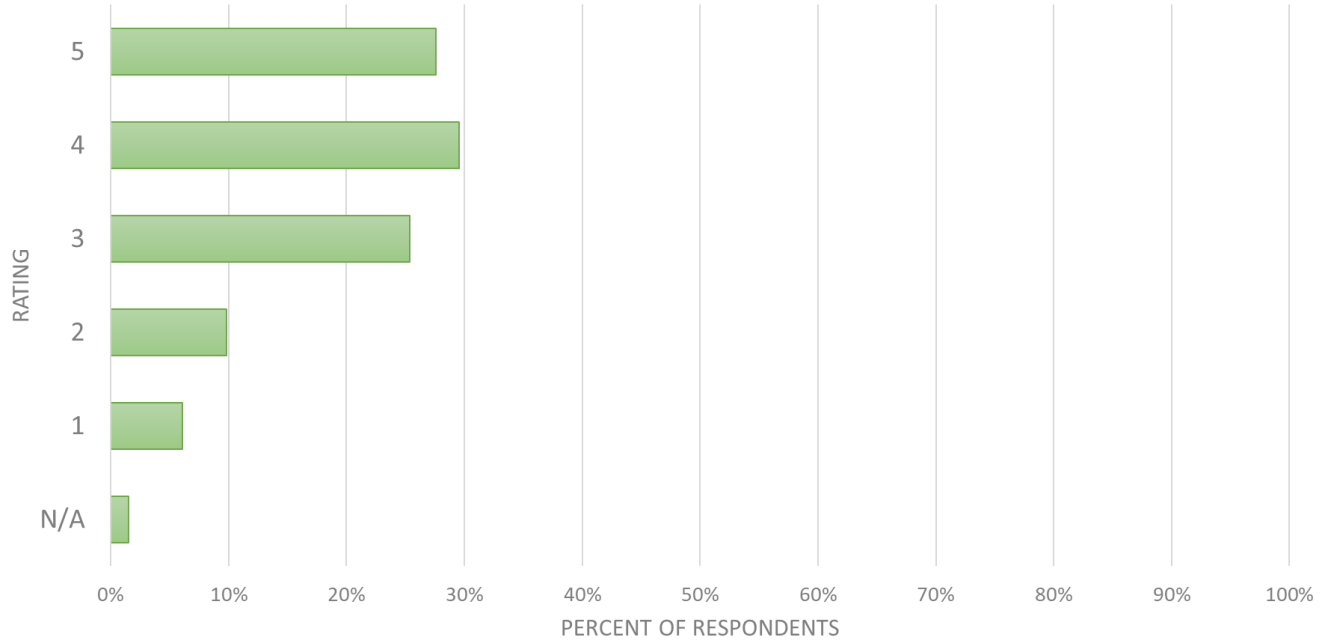
Average rating: 3.9

Bus stops with shelters to protect from rain and heat



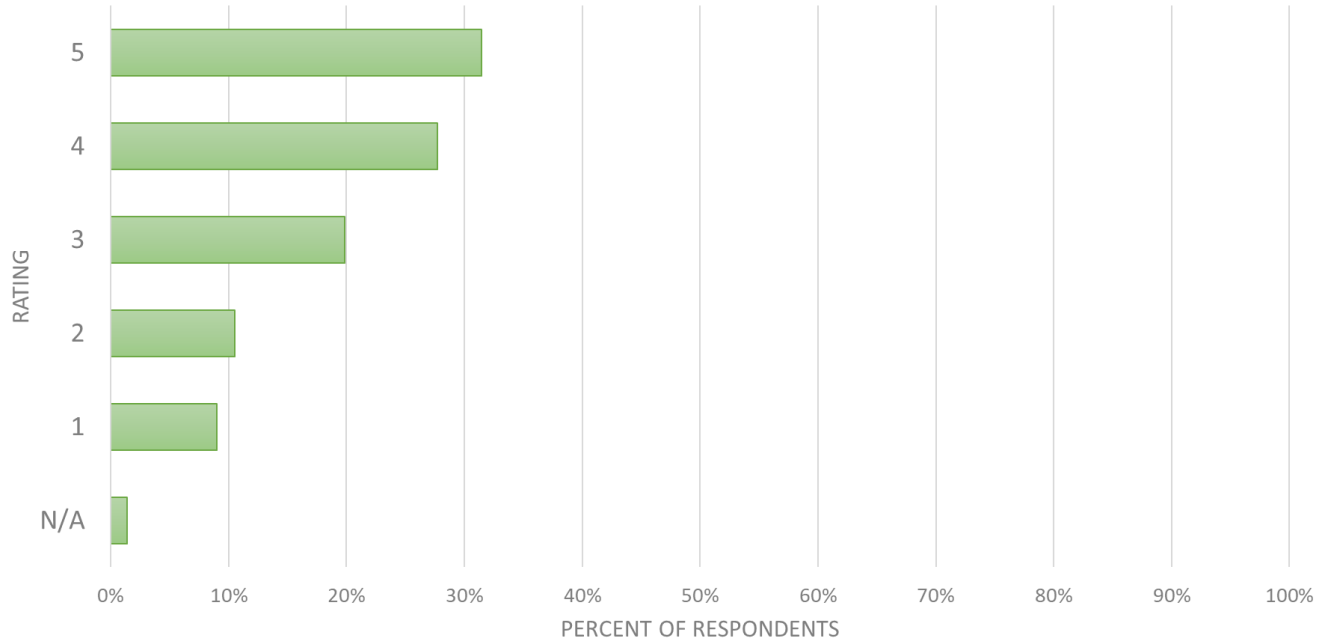
Average rating: 4.2

Frequency of service every 15 minutes or less



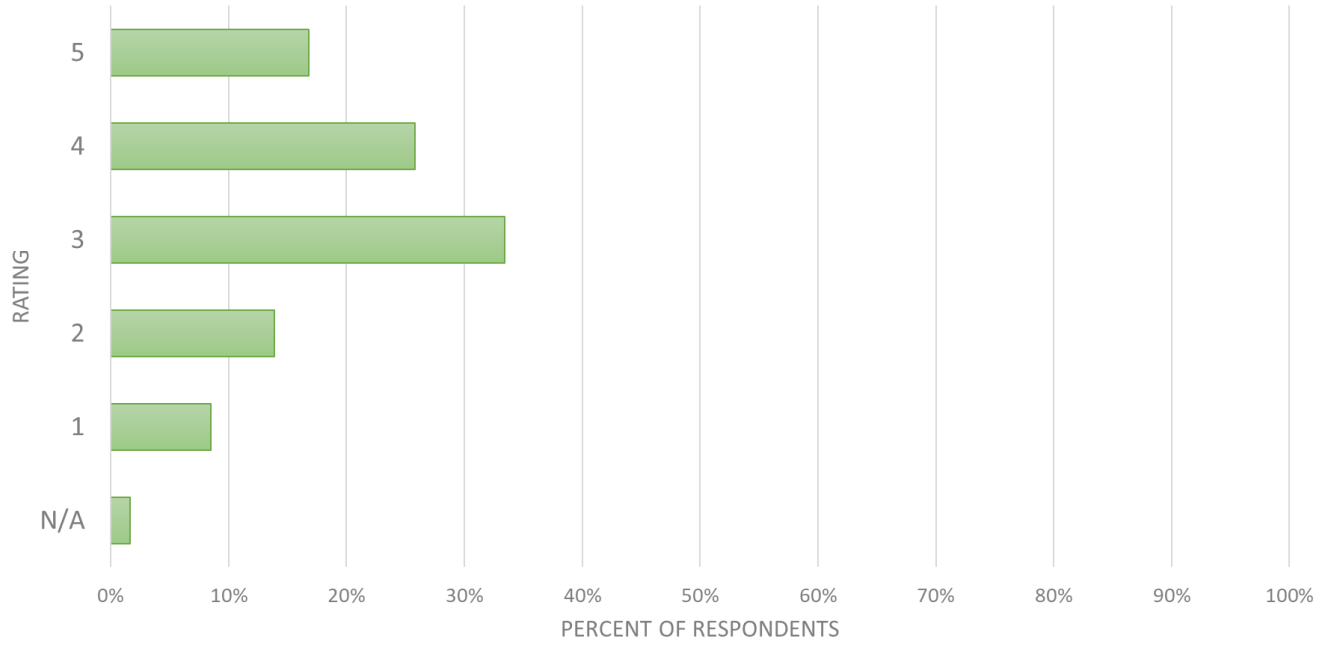
Average rating: 3.6

Buses running early in the morning and late in the evening



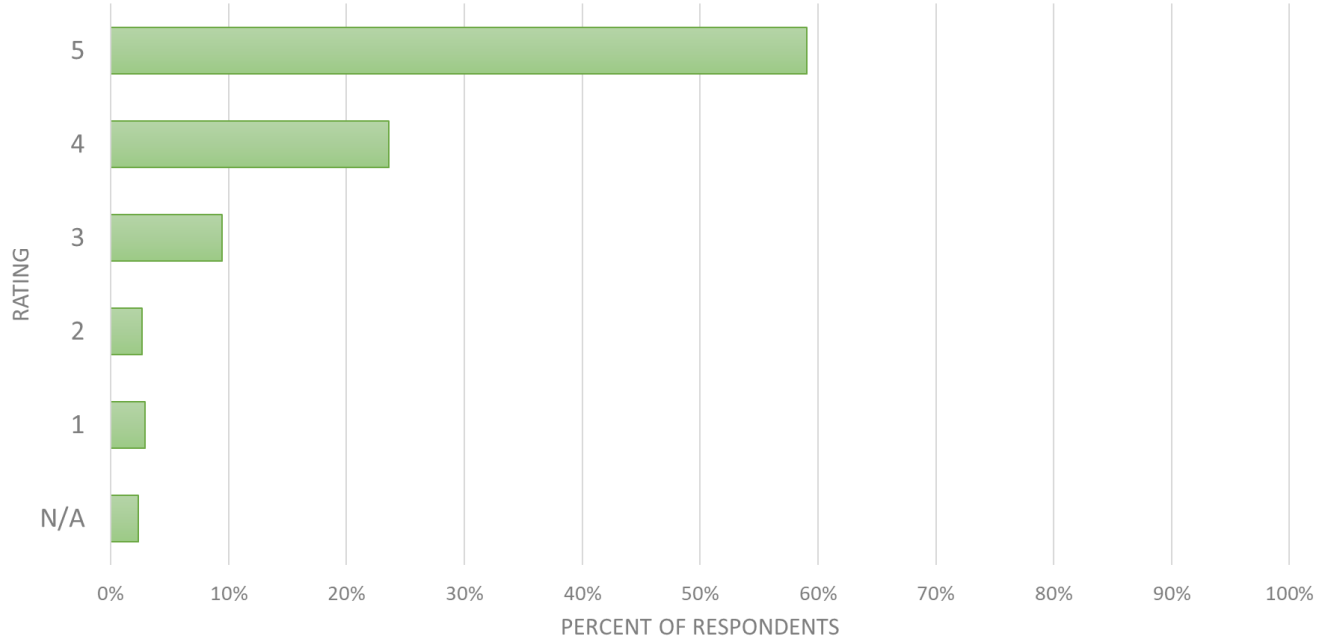
Average rating: 3.6

Direct route between Independence and Monmouth with minimal stops and deviations



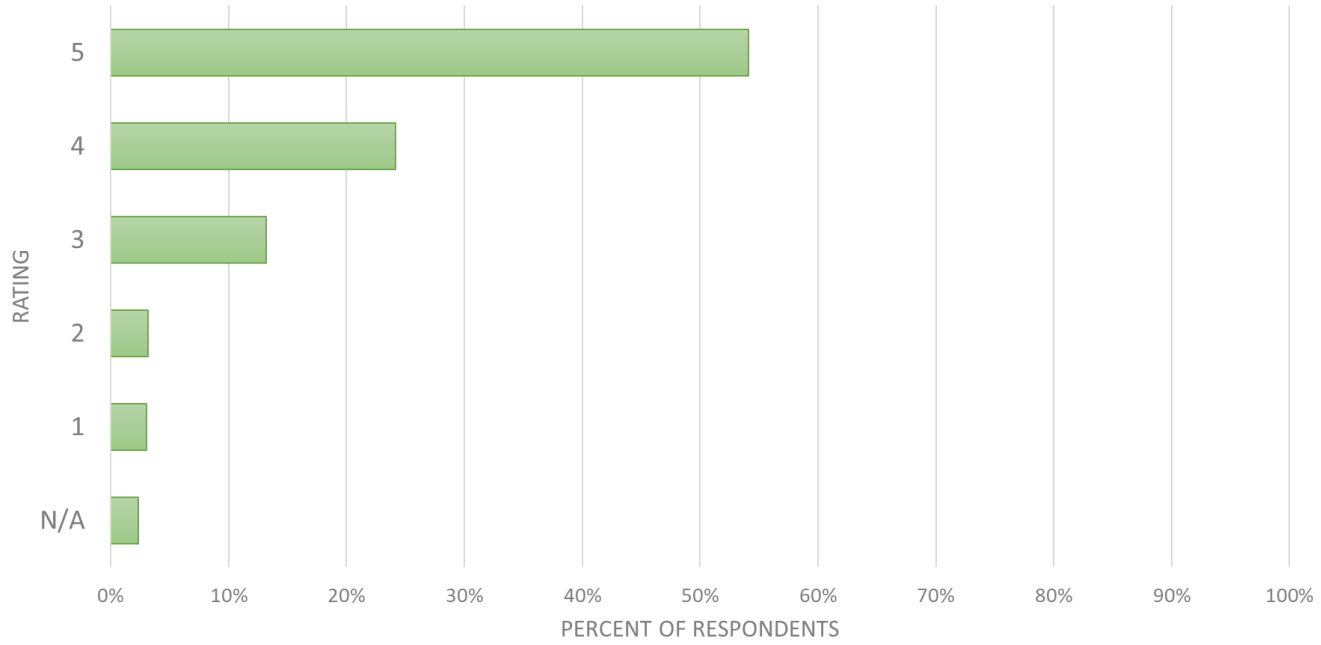
Average rating: 3.3

Mobile app to access schedule and frequency of service information



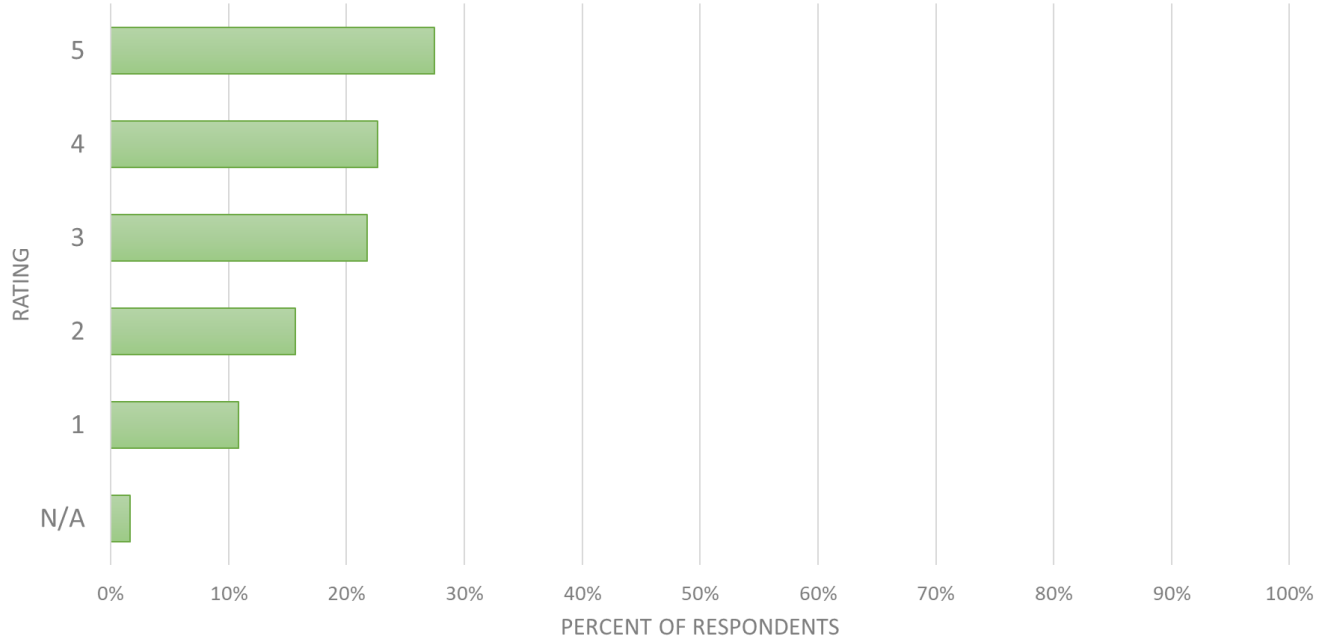
Average rating: 4.4

Ability to get bus arrival times and notifications on mobile phone



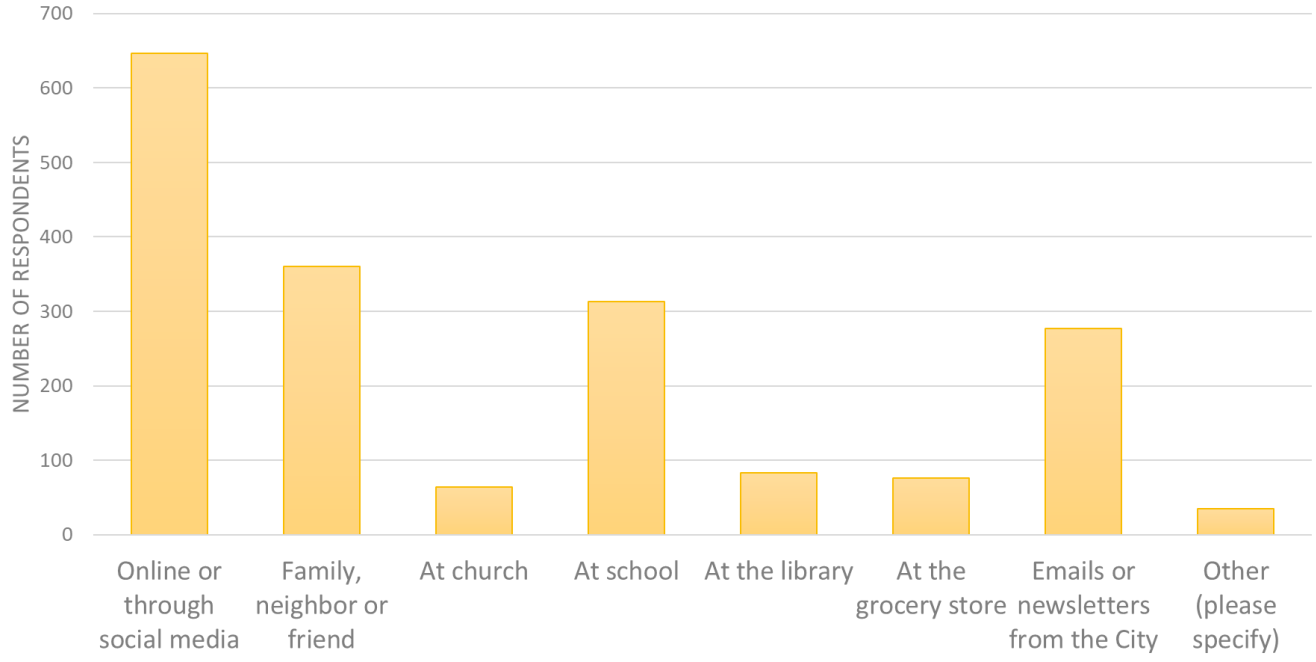
Average rating: 4.3

Ability to request a pickup from any location in the Cities of Independence and Monmouth

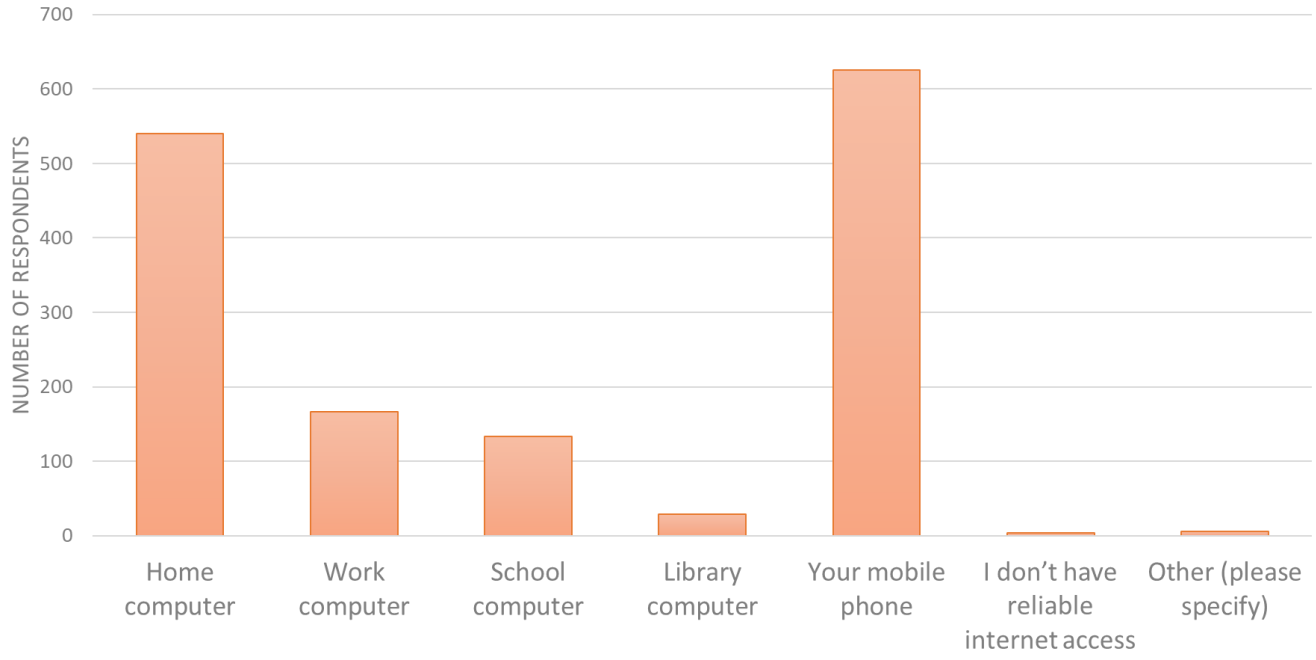


Average rating: 3.4

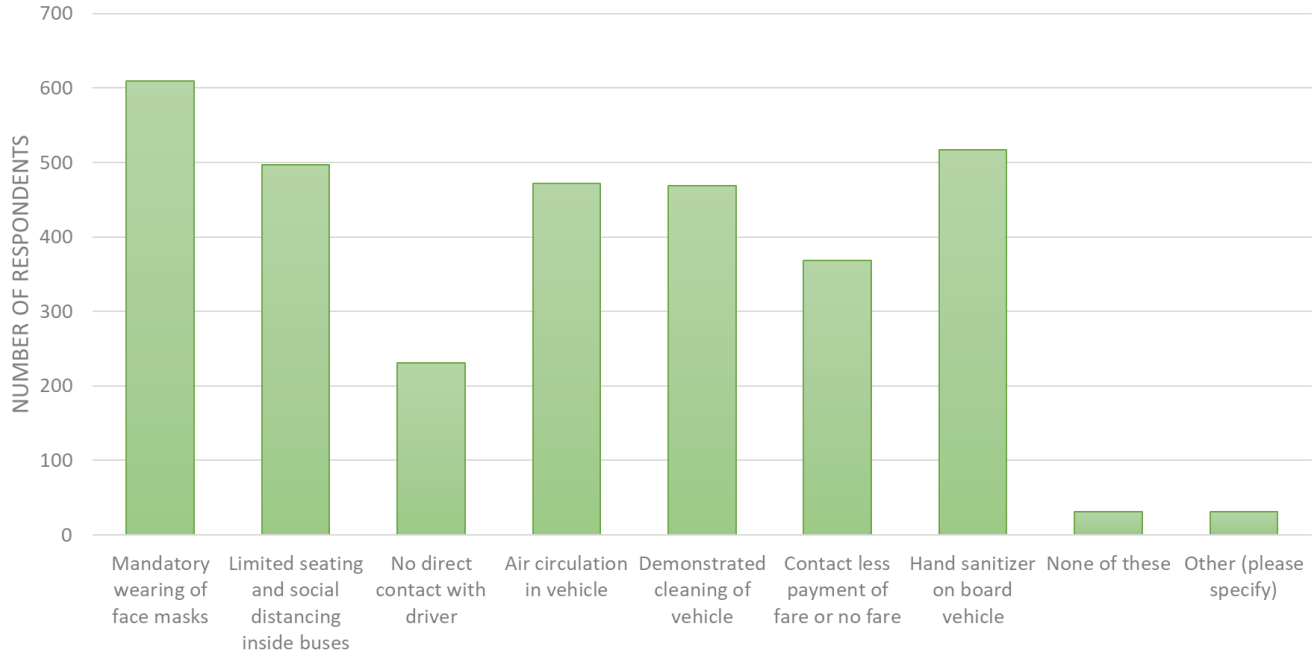
Q20 Where do you get information about activities that occur in the community (mark all that apply)?



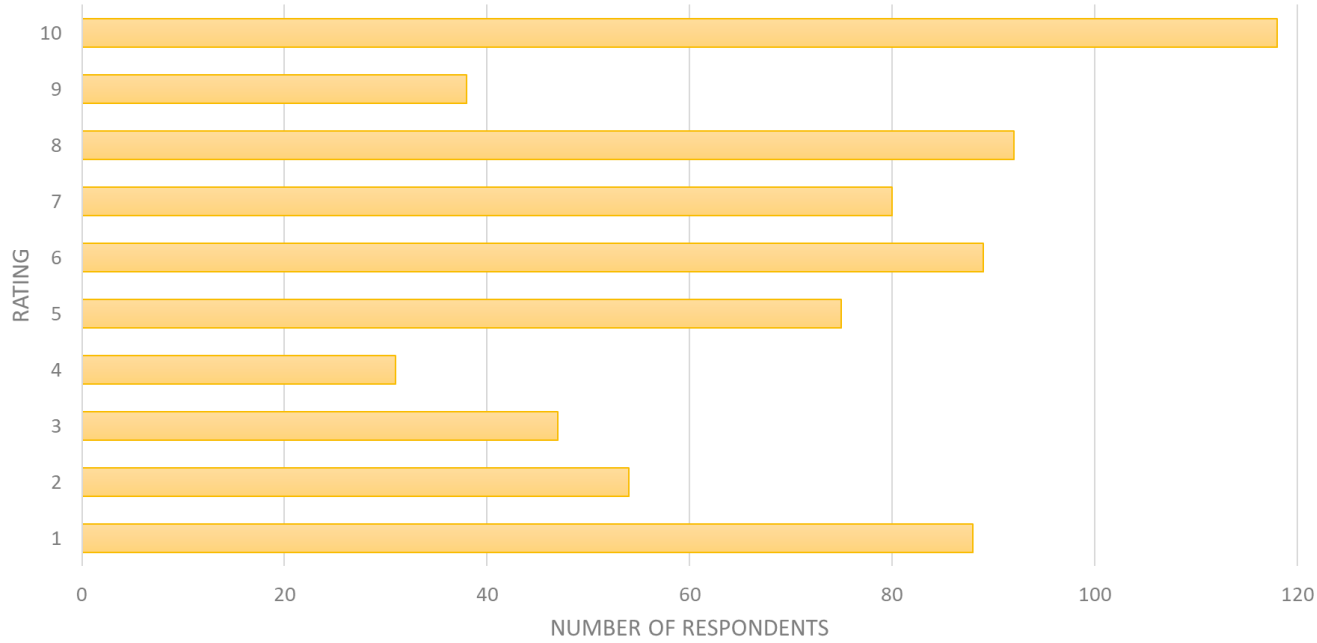
Q21 Where do you access the internet, most often (mark all that apply)?



Q22 What would make you feel safer when riding public transit during this pandemic (mark all that apply)?

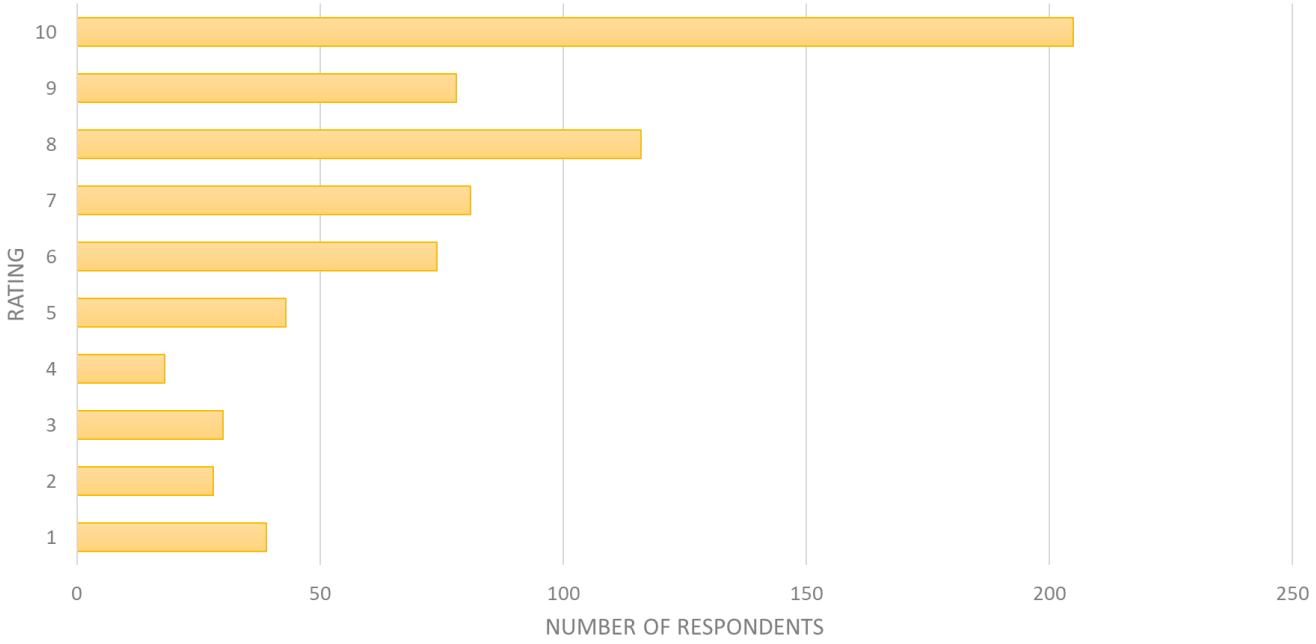


Q23 On a sliding scale of 1 to 10, how likely are you to use public transit during the COVID-19 pandemic, if these measures were in place?



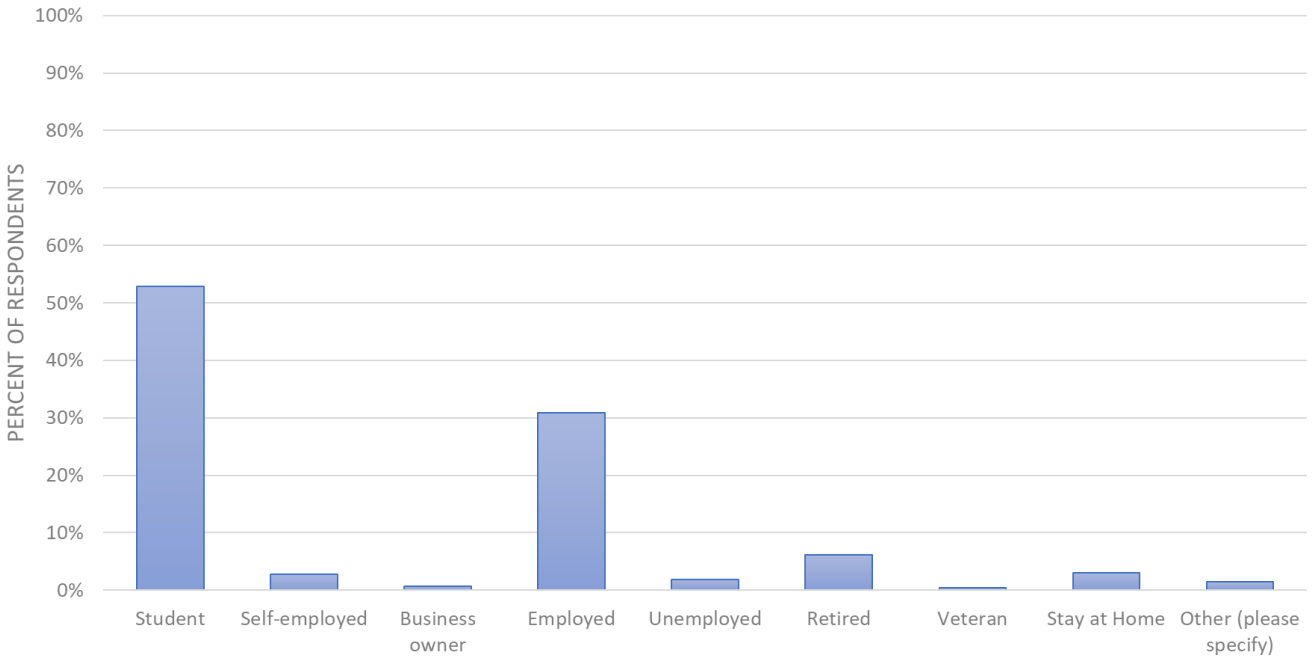
Average rating: 5.9

Q24 On a sliding scale of 1 to 10, how likely are you to use public transit once the COVID-19 pandemic is over, and these measures are no longer necessary?

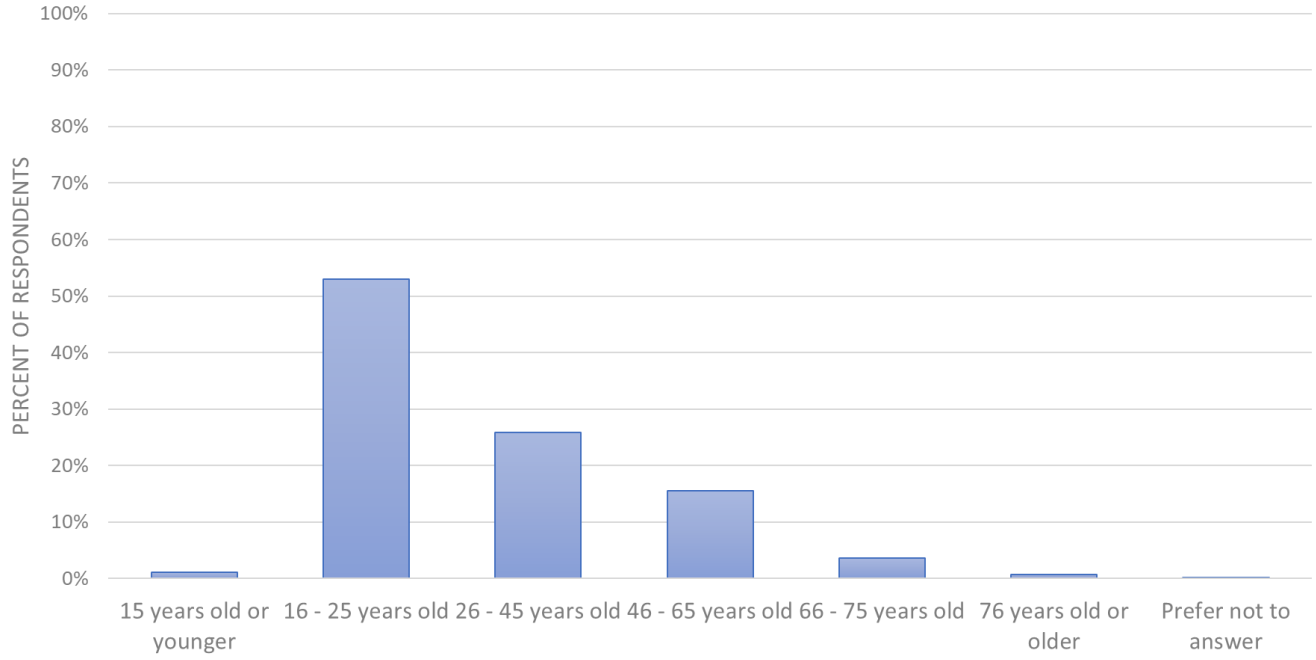


Average rating: 7.3

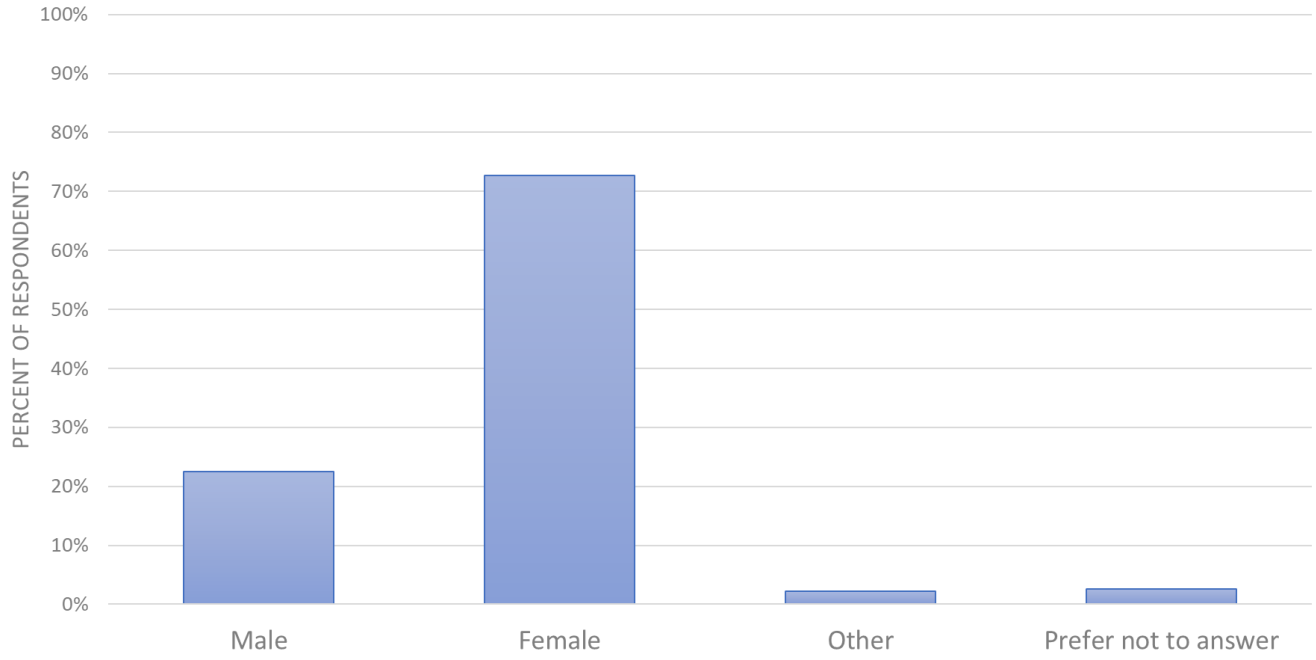
Q25 Which of the following best describes your status?



Q26 What is your age group?



Q27 What is your gender?



Appendix E – Potential Funding Sources Matrix

Appendix E – Potential Funding Sources Matrix

Based on a review of state and federal funds and Oregon transit agencies, Walker has identified the following potential funding sources for an Independence-Monmouth local transit service.

Figure 44: Potential State Funding Sources

Potential State Funding Sources						
Name	**Description**	**Formula or Competitive / Match Requirement**	**Operating / Capital**	**Funding Available**	**Comments**	**Opportunity**
Statewide Transportation Improvement Fund (STIF)	Funding through the Oregon state payroll tax equal to one-tenth of 1%. Three types of funding: **1. Formula:** 90% of STIF funds. ODOT disburses Formula funds to mass transit districts, transportation districts, or counties without either a mass transit or transportation district, and to federally recognized tribes. Formula funds are allocated based on the proportionate share of the wages in the service area. Funds support: - Creation of new systems and services with origins, destinations or stops in Oregon. - Maintenance or continuation of systems and services in certain circumstances. - Planning for and development of a Local Plan or future STIF Plan to improve service.	Annual formula and competitive grant Two-year funding cycle Match Requirement: Formula: No match is required Discretionary: 20% or 10% Intercommunity Discretionary: 20%	Operating and Capital	The state will estimate the total funding amount annually. Actual revenues will vary based on tax collections. FY2020: Formula: $171 M Discretionary: $9.5 M Intercommunity Discretionary $7.6M	This fund merged with the Special Transportation Fund in Oct 2019 **Requirements for Discretionary Funds at a 10% match:** - Predominantly serve or provide access to and from rural communities (communities outside of urbanized areas with populations of 50,000 people or less); - Serve an area located outside of a Public Transportation Service Provider's geographic jurisdiction; - Fill a significant gap in the	Formula: Medium/High Discretionary: Medium/High Intercommunity: Low

Potential State Funding Sources						
Name	**Description**	**Formula or Competitive / Match Requirement**	**Operating / Capital**	**Funding Available**	**Comments**	**Opportunity**
	2. Discretionary: 5% of STIF funds. Awarded by a competitive grant process to fund a range of capital and operations. Can be used to fund pilot projects. Must be a Public Transportation Service Provider: city, county, special district, intergovernmental entity, or any political subdivision or municipal or public corporation that provides public transportation services. **3. Intercommunity Discretionary:** 4% of STIF funds. Awarded by a competitive process to improve public transportation between two or more communities. Must be a Public Transportation Service Provider (see above for definition).				Statewide Transit Network; or - Provide statewide benefits to multiple Public Transportation Service Providers - Match sources may include federal funds and certain state funds (STIF Formula or Special Transportation Funds) for public transportation purposes, local funds, private contributions, and in-kind labor or contributions. Match contributions, including Capital Assets such as property, shall be used only once as match on a single Project and may not be used again as a match. Fare box revenues are not an eligible match	
State of Oregon Lottery Revenue Bond Program	Article XV, Section 4 of the Oregon Constitution creates the State Lottery and requires that net lottery proceeds be used to create jobs, further economic development, finance public education in	Annual bond program, competitive	Capital	N/A	Lottery Bond proceeds have been used to fund transportation capital infrastructure. For example, in 2017, HB2017	Medium

Potential State Funding Sources						
Name	**Description**	**Formula or Competitive / Match Requirement**	**Operating / Capital**	**Funding Available**	**Comments**	**Opportunity**
	Oregon, or restore and protect Oregon's parks, beaches, watersheds, and native fish and wildlife. Lottery revenue bonds are statutorily authorized to be issued for projects that benefit the same public purposes as lottery proceeds. Bonds are secured by net lottery revenues, which are constitutionally required to be appropriated to meet lottery bond debt service before being appropriated for any other purpose. The Oregon Department of Administrative Services manages the lottery revenue bond program, but proceeds are utilized across state agencies for a variety of projects and programs including transportation.				appropriated state funding from lottery bond proceeds to existing transit infrastructure: Oregon Revised Statute (ORS) 286.585(31)(2): Net proceeds and interest earnings of lottery bonds issued under this section of the ORS transferred $5 million to the Oregon Department of Transportation (ODOT) for deposit to the ODOT Economic Development Distributions Fund established in ORS 461.557 for distribution to Lane Transit District for upgrades and improvements to existing transit infrastructure. The Oregon Department of Administrative Services and ODOT coordinated issuances of the lottery bonds in April 2019.	

Figure 45: Potential Federal Funding Sources

Potential Federal Funding Sources					
Name	**Description**	**Formula or Competitive / Match Requirement**	**Operating / Capital**	**Funding Available**	**Opportunity**
5539 Bus and Bus Facilities	Replacement and purchase of buses, bus equipment, and bus-related facilities such as signs and shelters for transportation providers in small urban and rural areas with population of 199,999 or less. Distribution to local agencies is done through an ODOT discretionary selection process.	Competitive on an annual basis Match Requirements: Vehicles: 15% local match Vehicle related equipment and facilities: 20% local match	Capital	FY 2020: $10.3M Must apply through the State (ODOT)	Medium/Low (once service is established)
5539 (b) Discretionary Buses and Bus Facilities Infrastructure Investment Program	Assist in the financing of buses and bus facilities capital projects, including replacing, rehabilitating, purchasing or leasing buses or related equipment, and rehabilitating, purchasing, constructing or leasing bus-related facilities. Eligible applicants include designated recipients that allocate funds to fixed route bus operators, states or local governmental entities that operate fixed route bus service, and Indian tribes. Eligible subrecipients include all otherwise eligible applicants and private nonprofit organizations engaged in public transportation. ODOT submits a statewide application on behalf of public agencies, private nonprofit organizations engaged in public transportation in rural areas, and projects proposed by Indian tribes; all proposals for	Competitive on an annual basis Match Requirements: Vehicles, 15% local funds Bus-related Equipment and Facilities (such as recharging or refueling facilities, including clean fuel or alternative-fuel vehicle-related equipment), 10% local funds Eligible sources of local match include the following: - Cash from non-Government sources other than revenues from providing public transportation services; revenues derived from the sale of advertising and concessions; - Amounts received under a service agreement with a State or local social service agency or private social service organization; - Revenues generated from value capture	Capital	FY 2020: $454.6M A minimum of 10%, $45.5 million, will be awarded to projects located in rural areas Must apply through the State (ODOT)	Medium/Low (once service is established)

Potential Federal Funding Sources					
Name	**Description**	**Formula or Competitive / Match Requirement**	**Operating / Capital**	**Funding Available**	**Opportunity**
	projects in rural (non-urbanized) areas must be submitted by the State. Scalable Project Budget: Applicants are encouraged to identify scaled funding options in case insufficient funding is available to fund a project at the full requested amount.	financing mechanisms; or funds from an undistributed cash surplus; replacement or depreciation cash fund or reserve; - Transportation development credits or documentation of in-kind match may substitute for local match if identified in the application			
5310 Enhanced mobility of Seniors and Individuals with Disabilities	Operations, Mobility Management, Purchased Service, Preventative maintenance Distribution to local agencies is done through an ODOT discretionary selection process	Competitive on an annual basis Match Requirements: Operations 50% local funds Capital: 20% local Funds	Operations and Capital	$2.1M Must apply through the State (ODOT)	Medium/Low (once service is established)
Federal Transit Administration's (FTA) Low or No Emission Program (Low-No Program)	Purchase or lease of zero-emission and low-emission transit buses. This also includes acquisition, construction, and leasing of required supporting facilities An eligible applicant is a designated recipient of FTA 5307 grants as well as states, local governmental authorities, and Indian tribes. ODOT applies on behalf of subrecipients who are not 5307 direct recipients Applicants are encouraged to identify scaled funding options in case insufficient funding is available to fund a project at the full requested amount	Competitive on an annual basis Match Requirements: Vehicles 15% local funds Bus-related Equipment and Facilities (such as recharging or refueling facilities), 10% local funds Acceptable match sources: - Cash from non-government sources other than revenues from providing public transportation services - Revenues derived from the sale of advertising and concessions - Amounts received under a service	Capital	FY 2020: $130M Must apply through the State (ODOT)	Medium/Low (once service is established)

Potential Federal Funding Sources					
Name	**Description**	**Formula or Competitive / Match Requirement**	**Operating / Capital**	**Funding Available**	**Opportunity**
	FTA will consider the quality and extent to which applications demonstrate how the proposed project will: reduce energy consumption, reduce harmful emissions and reduce direct carbon emissions	agreement with a state or local social service agency or private social service organization - Revenues generated from value capture financing mechanisms - Funds from an undistributed cash surplus - Replacement or depreciation cash fund or reserve - New capital - In-kind contributions - Transportation development credits or documentation of in-kind match may substitute for local match if identified in the application			
5311 Formula Grants for Rural Areas	Eligible activities include planning, capital, operating, job access and reverse commute projects, and the acquisition of public transportation services in rural areas with populations of less than 50,000, where many residents often rely on public transit to reach their destinations Funds are available to the States during the fiscal year of apportionment plus two additional years (total of three years). Funds are apportioned to States based on a formula that includes land area, population, revenue vehicle miles, and low-income individuals in rural areas Each state must spend no less than 15% of its annual apportionment for the development	Competitive through ODOT Match Requirements: Capital projects and ADA non-fixed route paratransit 20% local funds Operating: 50% local funds	Operations and Capital	FY 2020: $758.9M Must apply through the State (ODOT)	Medium (once service is established)

Potential Federal Funding Sources					
Name	**Description**	**Formula or Competitive / Match Requirement**	**Operating / Capital**	**Funding Available**	**Opportunity**
	and support of intercity bus transportation, unless it can certify, after consultation with intercity bus service providers, that the intercity bus needs of the state are being adequately met Any remaining funds are available in the Start-up program for new transit systems				
5311 (f) Transit Network Intercity	Funding comes from the 5311 program (15% of the 5311 program) and from ODOT's transfer of Federal Highway Administration Surface Transportation Program funds into the 5311 program. Awarded through a competitive discretionary grant process based on statewide program criteria. Eligible recipients include agencies, public entities, Indian tribes, and private for-profit agencies that provide transit service Must use or have a process in place to create and maintain GTFS Eligible projects include Regional connector services, planning, marketing, coordination, preventive maintenance, projects that support key transit hubs, and capital assistance for buses and shelters Must include:	Capital projects: 20% local funds Operating projects: 50% local funds	Operations and Capital	FY 2017: $1.8M was distributed throughout Oregon Must apply through the State (ODOT)	Low

Potential Federal Funding Sources					
Name	**Description**	**Formula or Competitive / Match Requirement**	**Operating / Capital**	**Funding Available**	**Opportunity**
	- Operates between two or more cities, towns, or isolated clusters; - Operates on a fixed schedule; - Carries the general public and is not subject to preconditions for passage; and - Does not operate wholly within urbanized areas. - Regularly scheduled bus service; - Available to the general public; - Makes limited stops; - Operates on fixed routes; - Connects two or more urban areas not in close proximity; Makes meaningful connections (if available); - Predominantly passenger service (any package/goods service must be incidental); - Not a commuter service; and - Not air, water, or rail service (bus only)				

Figure 46: Other Potential Funding Sources

Other Potential Funding Sources (Mostly Local)			
Name	**Description**	**Agency Comparison**	**Potential Revenue**
Fare Box Revenue	Fare box revenue	Only Corvallis Transit System is fare free in the State of Oregon	Dependent on ridership / fares
Property Taxes	Local property tax assessment	Rogue Valley Transportation District (Medford)	Dependent on tax assessment rate and property values

Other Potential Funding Sources (Mostly Local)			
Name	**Description**	**Agency Comparison**	**Potential Revenue**
Advertising	Advertising from local/state/national businesses	Rogue Valley Transportation District (Medford) – approx. $90K in FY 2020 Lane Transit (Eugene) – approx. $130K in FY 2020	Dependent on local market
Payroll Tax	Tax on wages	Lane Transit (Eugene) - Businesses currently pay a 0.73 % tax on their total payroll, approx. $27M annually SMART Transit (Wilsonville) Payroll tax is .0.005 on total payroll, approx. $5m annually	Dependent on labor market and tax rate
Utility Tax	Tax on utility consumption	Corvallis utility customers pay a tax indexed to the average price of a gallon of regular grade gasoline/annual trips February 1, 2020: • The amount for single-family residential customers is $3.13 per month • The amount for multi-family residential customers is $2.16 per housing unit per month • The amount for commercial and industrial customers is based on the type of business	Dependent on rate, number of housing units, number of businesses, the price of gasoline, and total trips
Scooter/Bike Share Fees	Operator fees from a scooter/bike share Dockless or docked system Could also serve as a first/last mile connector	Cities and universities that permit scooters and bikes typically charge a per device fee and/or a per ride fee. Can range from $1-$3/day per device and $0.25 per ride Annual application fee can range from $1K to $10K	Dependent on fee and the number of bikes/scooters